**Note:** Curlyleaf pondweed and zebra mussels are present in Pickerel Lake. Care should be taken by all user groups to prevent their spread. For more information regarding aquatic invasive species please visit https://sdleastwanted.sd.gov/

## Pickerel Survey Summary

Pickerel Lake, located 6.0 miles northeast of Grenville, is managed as a multi-species fishery including panfish (i.e., black crappie, bluegill, and yellow perch), smallmouth bass and walleye; other fish species (e.g., northern pike, white bass, etc.) also contribute to the fishery.

- **Black crappie.** Black crappies were not abundant (0.5 per frame net) in 2023; nine individuals that ranged in length from 9.8 to 13.0 inches were sampled.

- **Bluegill.** More bluegills were sampled in 2023 than in 2022. At 9.7 per frame net, relative abundance was considered moderate for Pickerel Lake. Sampled bluegills ranged in length from 3.5 to 8.7 inches, 10% were ≥6.0 inches and 1% were ≥8.0 inches. Four consecutive year classes (2018 – 2021) contributed to the catch. Individuals from the 2021 (age-2) cohort, which had a mean length at capture of 4.3 inches, were the most abundant accounting for 90% fish in the sample.

- **Northern pike.** Northern pike numbers were slightly higher in 2023 than in 2022. At 1.1 per gill net, relative abundance was considered moderate. Sampled northern pike ranged in length from 19.7 to 35.4 inches, 92% were ≥21.0 inches and 15% were ≥28.0 inches.

- **Smallmouth bass.** Spring electrofishing for smallmouth bass was not completed in 2023.

- **Walleye.** Walleye numbers were lower in 2023 than in 2022. At 2.5 per gill net, relative abundance was considered low. Gill net captured walleyes ranged in length from 12.2 to 26.0 inches, 87% were ≥15.0 inches and 17% were ≥20.0 inches. Ten year classes (2010, 2011, 2013, 2014, 2015, and 2017 – 2021), each represented by 7 or fewer individuals, contributed to the catch. Since 2014, the mean length at capture of age-4 fish has ranged from 14.4 to 17.4 inches. In 2023, the mean length at capture of age-4 fish was 15.8 inches.

- **Yellow perch**. The 2023 mean gill net CPUE of 1.3 was the second lowest recorded from 2014 – 2023 and suggested low relative abundance. Yellow perch from 5.1 to 7.5 inches representing three consecutive cohorts (2019 – 2021) contributed to the catch. Yellow perch growth tends to be slow to moderate at Pickerel Lake. Since 2014, mean length at capture values of age-3 yellow perch have ranged from 6.1 to 8.8 inches. In 2023, the mean length of age-3 fish was 6.9 inches.

For more detailed results see the computer-generated South Dakota Statewide Fisheries Survey for Pickerel Lake (below).

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
## Pickerel, Day County
## UBS-Lake-358-000
## 2023

## Lake Information

| | | | |
|---|---|---|---|
| **Name:** | Pickerel | **Maximum Depth:** | 41 Feet |
| **County:** | Day | **Mean Depth:** | 16 Feet |
| | | **OHWM Elevation:** | 1,846 |
| **Surface Area:** | 989 Acres | **Outlet Elevation:** | 1,845 |

## Surveys and Investigations

Survey methods used by gear type, date, and effort.

| Gear | Date | Effort |
|---|---|---|
| AFS std gill net | Jun 20, 2023 | 4 net-nights |
| AFS std gill net | Jun 21, 2023 | 4 net-nights |
| AFS std gill net | Jun 22, 2023 | 4 net-nights |
| fall night EF-WAE | Sep 25, 2023 | 3000 seconds |
| frame net (std 3/4 in) | Jun 20, 2023 | 6 net-nights |
| frame net (std 3/4 in) | Jun 21, 2023 | 6 net-nights |
| frame net (std 3/4 in) | Jun 22, 2023 | 6 net-nights |

## Common Fish Species Present

Northern Pike

Bluegill

Black Crappie

Walleye

Smallmouth Bass

Yellow Perch

Rock Bass

White Bass

Black Bullhead

White Sucker

## Terminology

Catch per unit effort (**CPUE**) refers to the relative abundance of a species. It is defined as the number of fish captured per unit of effort (i.e., number of fish captured per net-night or number of fish captured per hour electrofishing). In this report CPUE is typically given for only stock-length fish (see length categories table for stock lengths).

A statewide effort to help make netting efforts comparable to all waters sampled across the state, occurred in 2017, with a switch to American Fisheries Society gill nets. Past gill netting efforts were completed with different style/types of nets and are not comparable side by side.

- **AFS std gill net** – 80 ft experimental gill net containing eight panels (10 ft each) of varying monofilament meshes of 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25 and 2.50 inches.
- **std experimental gill net for non-Missouri River waters** - 150 ft experimental gill net containing six panels (25 ft each) of varying monofilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.
- s**td experimental gill net for Missouri River reservoirs** – 300 ft experimental gill net containing six panels (50 ft each) of varying multifilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.

$$CPUE = \frac{number\ of\ fish}{effort}$$

Population size structure is quantified using the indices proportional size distribution of quality-length fish (**PSD**) and proportional size distribution of preferred-length fish (**PSD-P**). These indices indicate the proportion of stock-length fish that are equal to or greater than a given length. Minimum lengths for stock, quality and preferred length fish are given in the length categories table.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

$$PSD - P = \left(\frac{number\ of\ fish \geq preferred\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

Relative weight (**Wr**) is used to quantify fish plumpness. Relative weight is the ratio of what a fish weighs (W) compared to a length-specific standard weight (Ws) multiplied by 100. Relative weight values of 95-105 are commonly cited as optimum values, but values in the 80s are common during summer sampling in South Dakota.

$$Wr = \left(\frac{W}{Ws}\right) \text{x } 100$$

Confidence intervals (**CI**) are provided for many of the estimates calculated in this report. The confidence interval provides a range in which the true mean is expected to fall. For example, with an 80% CI we are 80% confident that the interval contains the true value.

Length categories include stock (**S**), quality (**Q**), preferred (**P**), memorable (**M**) and trophy (**T**). Length categories for most species have been defined based on a percentage of the world record length for that species. Some species mentioned in this report do not have defined length categories. Length categories for species used in this report are provided in the following table. Measurements are the minimum total length for each category and are reported in inches (in) and centimeters (cm).

| | Stock | | Quality | | Preferred | | Memorable | | Trophy | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species Name | (in) | (cm) | (in) | (cm) | (in) | (cm) | (in) | (cm) | (in) | (cm) |
| Black Bullhead | 6 | 15 | 9 | 23 | 12 | 30 | 15 | 38 | 18 | 46 |
| Black Crappie | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |
| Bluegill | 3 | 8 | 6 | 15 | 8 | 20 | 10 | 25 | 12 | 30 |
| Brown Trout | 8 | 20 | 12 | 30 | 16 | 40 | 20 | 50 | 18 | 46 |
| Channel Catfish | 11 | 28 | 16 | 41 | 24 | 61 | 28 | 71 | 36 | 91 |
| Freshwater Drum | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Lake Trout | 12 | 30 | 20 | 50 | 26 | 65 | 31 | 80 | 39 | 100 |
| Largemouth Bass | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Muskellunge | 20 | 51 | 30 | 76 | 38 | 97 | 42 | 107 | 50 | 127 |
| Northern Pike | 14 | 35 | 21 | 53 | 28 | 71 | 34 | 86 | 44 | 112 |
| Pumpkinseed | 3 | 8 | 6 | 15 | 8 | 20 | 10 | 25 | 12 | 30 |
| Rainbow Trout | 10 | 25 | 16 | 40 | 20 | 50 | 26 | 65 | 31 | 80 |
| Rudd | 6 | 15 | 10 | 25 | 12 | 30 | 15 | 38 | 19 | 48 |
| Sauger | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Smallmouth Bass | 7 | 18 | 11 | 28 | 14 | 35 | 17 | 43 | 20 | 51 |
| Walleye | 10 | 25 | 15 | 38 | 20 | 51 | 25 | 63 | 30 | 76 |
| White Bass | 6 | 15 | 9 | 23 | 12 | 30 | 15 | 38 | 18 | 46 |
| White Crappie | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |
| Yellow Bullhead | 4 | 10 | 7 | 18 | 9 | 23 | 11 | 28 | 14 | 36 |
| Yellow Perch | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |

## Catch Summary of Stock Length Fish

Catch per unit effort (CPUE), proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) for species sampled in survey with 80% confidence interval (CI-80).

*** Methods/Species that ignore stock length**

| | | | Abundance | | Stock Density Indices | | | | Condition | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Sample Size (n) | CPUE | CI-80 | PSD | CI-80 | PSD-P | CI-80 | Wr | CI-80 |
| AFS std gill net | Black Crappie | 3 | 0.3 | 0.2 | 100 | | 67 | | 103 | 6 |
| | Bluegill | 9 | 0.8 | 0.4 | 89 | | 67 | | 121 | 2 |
| | Common Carp | 1 | 0.1 | 0.1 | 100 | | 100 | | 89 | |
| | Northern Pike | 13 | 1.1 | 0.5 | 92 | | 15 | | 83 | 2 |
| | Rock Bass | 5 | 0.3 | 0.3 | 75 | | 25 | | 106 | 5 |
| | Smallmouth Bass | 39 | 3.3 | 1.2 | 92 | | 67 | 11 | 97 | 1 |
| | Walleye | 30 | 2.5 | 0.8 | 87 | | 17 | 11 | 83 | 1 |
| | White Bass | 32 | 2.7 | 1.2 | 100 | | 100 | | 86 | 1 |
| | White Sucker | 9 | 0.8 | 0.4 | 100 | | 100 | | 101 | 3 |
| | Yellow Perch | 16 | 1.3 | 1.2 | 0 | | 0 | | 93 | 3 |
| frame net (std 3/4 in) | Black Bullhead | 77 | 4.3 | 3.0 | 100 | | 90 | 5 | 94 | 1 |
| | Black Crappie | 9 | 0.5 | 0.2 | 100 | | 100 | | 95 | 3 |
| | Bluegill | 175 | 9.7 | 4.8 | 10 | 3 | 1 | | 110 | 1 |
| | Largemouth Bass | 1 | 0.0 | 0.0 | 0 | | 0 | | | |
| | Northern Pike | 26 | 1.4 | 0.4 | 72 | 14 | 12 | | 79 | 2 |
| | Rock Bass | 127 | 6.9 | 2.0 | 59 | 6 | 8 | 4 | 101 | 1 |
| | Smallmouth Bass | 75 | 4.1 | 0.7 | 72 | 8 | 41 | 8 | 94 | 1 |
| | Walleye | 37 | 2.1 | 0.6 | 92 | | 32 | 12 | 83 | 1 |
| | White Bass | 80 | 4.4 | 3.3 | 100 | | 100 | | 84 | 1 |
| | White Sucker | 1 | 0.1 | 0.1 | 100 | | 100 | | 91 | |
| | Yellow Perch | 4 | 0.2 | 0.1 | 67 | | 0 | | 81 | 4 |

## 10-Year Catch Per Unit Effort by Gear and Species

Catch per unit effort (CPUE) and average (Avg) of species across 10 years using different gear types.

***SDGFP standard gill nets used 2014 – 2015; average calculated for data from 2016 – 2023; **Methods/Species that ignore stock length; ***AFS frame nets used 2017**

| | | CPUE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Avg |
| AFS std gill net* | Black Bullhead | 0.2 | 3.2 | 0.1 | 1.3 | 0.0 | 0.2 | 0.2 | 0.8 | 0.1 | 0.0 | 0.34 |
| | Black Crappie | 7.2 | 2.5 | 0.2 | 0.2 | 0.9 | 0.6 | 0.9 | 4.6 | 0.6 | 0.3 | 1.04 |
| | Bluegill | 0.0 | 0.0 | 0.2 | 0.1 | 1.3 | 2.1 | 1.9 | 0.8 | 0.3 | 0.8 | 0.94 |
| | Common Carp | 0.2 | 0.3 | 0.1 | 0.2 | 0.4 | 0.2 | 0.3 | 0.0 | 0.3 | 0.1 | 0.20 |
| | Northern Pike | 3.0 | 3.3 | 0.5 | 1.3 | 1.5 | 2.5 | 3.0 | 2.9 | 0.6 | 1.1 | 1.68 |
| | Rock Bass | 0.0 | 0.0 | 0.0 | 0.1 | 0.5 | 0.2 | 1.1 | 0.1 | 0.5 | 0.3 | 0.35 |
| | Smallmouth Bass | 2.2 | 1.7 | 2.1 | 1.4 | 2.0 | 1.3 | 2.3 | 2.7 | 1.4 | 3.3 | 2.06 |
| | Walleye | 12.3 | 18.5 | 2.3 | 2.5 | 4.3 | 5.2 | 6.2 | 5.3 | 3.8 | 2.5 | 4.01 |
| | White Bass | 3.0 | 4.0 | 2.9 | 1.9 | 1.5 | 1.8 | 5.4 | 1.9 | 3.9 | 2.7 | 2.75 |
| | White Sucker | 1.5 | 1.7 | 1.1 | 1.7 | 1.8 | 1.6 | 0.8 | 1.5 | 0.9 | 0.8 | 1.28 |
| | Yellow Perch | 23.2 | 27.8 | 8.9 | 5.0 | 21.8 | 16.1 | 21.8 | 4.6 | 0.3 | 1.3 | 9.98 |
| boat shocker | Smallmouth Bass | | 110.0 | | | 6.0 | 59.0 | | | 24.9 | | 50.00 |
| fall night EF-WAE** | Walleye | 10.0 | 44.4 | 0.0 | 28.0 | 76.0 | | | 42.0 | 20.0 | 0.0 | 27.55 |
| frame net (std 3/4 in)*** | Black Bullhead | 10.1 | 10.9 | | 1.3 | | 6.6 | 1.7 | 0.2 | 7.3 | 4.3 | 5.30 |
| | Black Crappie | 1.0 | 0.9 | | 0.1 | | 0.7 | 0.5 | 0.4 | 0.3 | 0.5 | 0.55 |
| | Bluegill | 0.6 | 0.4 | | 11.6 | | 24.5 | 20.3 | 3.0 | 1.5 | 9.7 | 8.95 |
| | Common Carp | 0.0 | 0.1 | | 0.0 | | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.03 |
| | Northern Pike | 0.2 | 0.5 | | 0.2 | | 0.4 | 0.3 | 0.7 | 1.0 | 1.4 | 0.59 |
| | Rock Bass | 6.0 | 8.5 | | 1.2 | | 3.4 | 3.3 | 7.7 | 2.5 | 6.9 | 4.94 |
| | Smallmouth Bass | 2.3 | 2.3 | | 0.9 | | 2.6 | 2.7 | 2.9 | 1.3 | 4.1 | 2.39 |
| | Walleye | 0.6 | 0.3 | | 0.2 | | 0.2 | 0.2 | 0.3 | 0.4 | 2.1 | 0.54 |
| | White Bass | 0.1 | 0.2 | | 0.2 | | 0.6 | 0.3 | 0.1 | 0.1 | 4.4 | 0.75 |
| | White Sucker | 0.2 | 0.2 | | 0.1 | | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.11 |
| | Yellow Perch | 0.2 | 0.1 | | 0.3 | | 0.6 | 2.9 | 0.9 | 0.9 | 0.2 | 0.76 |

## 10-Year Size Structure and Condition Statistics by Gear and Species

Species proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) collected by different gear types across 10 years.

***SDGFP standard gill nets used 2014 – 2015; **AFS frame nets used 2017**

| | | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Index | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| AFS std gill net* | Northern Pike | PSD | 56 | 40 | 67 | 67 | 83 | 87 | 58 | 60 | 86 | 92 |
| | | PSD-P | 17 | 5 | 33 | 0 | 11 | 3 | 6 | 0 | 43 | 15 |
| | | Wr | 80 | 80 | 78 | 89 | 86 | 85 | 89 | 82 | 81 | 83 |
| | Walleye | PSD | 16 | 52 | 57 | 60 | 71 | 74 | 53 | 36 | 59 | 87 |
| | | PSD-P | 1 | 1 | 7 | 3 | 10 | 18 | 16 | 11 | 7 | 17 |
| | | Wr | 86 | 87 | 83 | 88 | 85 | 88 | 90 | 85 | 89 | 83 |
| | Yellow Perch | PSD | 86 | 79 | 98 | 60 | 48 | 32 | 21 | 33 | 0 | 0 |
| | | PSD-P | 12 | 40 | 52 | 33 | 11 | 4 | 1 | 4 | 0 | 0 |
| | | Wr | 108 | 110 | 109 | 101 | 100 | 103 | 104 | 97 | 99 | 93 |
| frame net (std 3/4 in)** | Bluegill | PSD | 82 | 71 | | 2 | | 92 | 94 | 74 | 28 | 10 |
| | | PSD-P | 73 | 43 | | 0 | | 15 | 44 | 20 | 20 | 1 |
| | | Wr | 118 | 129 | | 123 | | 120 | 120 | 120 | 122 | 110 |

## Length at Capture

Mean length at capture by age across years sampled, sample size (N).

Species: Bluegill

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 174 | | 108 (157) | 164 (15) | 175 (2) | 226 (1) | | | | | |
| 2022 | 25 | | 99 (18) | 185 (2) | 219 (4) | | 254 (1) | | | | |
| 2020 | 365 | | 120 (20) | 173 (175) | 210 (149) | 231 (21) | | | | | |
| 2019 | 441 | | 97 (21) | 175 (355) | 212 (65) | | | | | | |

Species: Walleye

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 30 | | 319 (3) | 387 (1) | 402 (3) | 427 (7) | 460 (6) | | 530 (4) | 579 (2) | 492 (4) |
| 2022 | 47 | 211 (1) | 310 (1) | 345 (6) | 389 (31) | 393 (1) | | 459 (1) | 587 (1) | 473 (3) | 528 (2) |
| 2021 | 64 | | 286 (3) | 335 (37) | 406 (9) | 418 (1) | 486 (6) | 530 (2) | | | 568 (6) |
| 2020 | 77 | | 275 (28) | 371 (17) | 418 (5) | 480 (6) | 481 (5) | 536 (6) | | 511 (4) | 578 (6) |
| 2019 | 62 | | 295 (14) | 378 (2) | 419 (21) | 459 (4) | 502 (9) | | 490 (3) | 502 (5) | 571 (4) |
| 2018 | 52 | 180 (1) | 311 (3) | 367 (16) | 443 (1) | 460 (15) | 474 (2) | 457 (5) | 463 (7) | | 677 (2) |
| 2017 | 30 | | 325 (10) | 376 (3) | 420 (9) | | 478 (3) | 450 (4) | 414 (1) | | |
| 2016 | 32 | 197 (4) | 296 (1) | 356 (10) | 372 (1) | 420 (9) | 422 (6) | | | | 645 (1) |
| 2015 | 114 | 186 (3) | 298 (28) | 373 (25) | 388 (37) | 410 (19) | | 604 (1) | 427 (1) | | |
| 2014 | 75 | 184 (1) | 307 (5) | 351 (41) | 367 (23) | 463 (1) | 416 (1) | 406 (1) | 443 (1) | | 556 (1) |

Species: Yellow Perch

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 16 | | 147 (9) | 175 (5) | 189 (2) | | | | | | |
| 2022 | 3 | | | 154 (3) | | | | | | | |
| 2021 | 55 | | 137 (4) | 167 (28) | 199 (12) | 223 (9) | 219 (3) | | | | |
| 2020 | 263 | | 142 (107) | 170 (87) | 210 (52) | 231 (17) | | | | | |
| 2019 | 195 | | 142 (62) | 194 (100) | 233 (30) | 243 (2) | | 302 (1) | | | |
| 2018 | 263 | | 153 (122) | 216 (108) | 249 (10) | 266 (8) | 280 (2) | 273 (10) | 310 (3) | 274 (1) | |
| 2017 | 60 | | 171 (25) | 223 (11) | 257 (12) | 266 (2) | 266 (4) | 286 (3) | 290 (3) | | |
| 2016 | 107 | | 164 (1) | 209 (10) | 237 (18) | 247 (26) | 258 (26) | 272 (24) | 294 (1) | | |
| 2015 | 168 | 100 (1) | 157 (16) | 196 (24) | 238 (50) | 255 (46) | 260 (23) | 249 (4) | | | |
| 2014 | 139 | | 146 (6) | 202 (27) | 229 (67) | 240 (38) | 234 (3) | | | | |

## Fish Condition

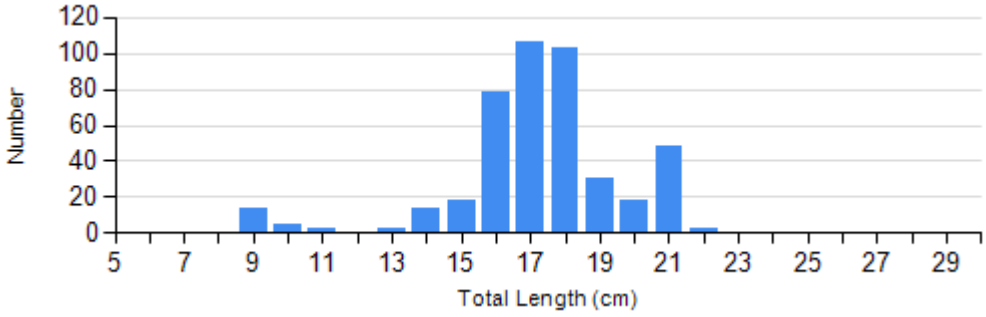
Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

| | | Length Groups | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | S-Q | | Q-P | | P-M | | M | |
| Species | Year | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) |
| Bluegill Frame Net | 2019 | 37 | 105 (1.8) | 336 | 122 (0.7) | 68 | 122 (1.3) | 0 | |
| | 2020 | 22 | 113 (3.2) | 182 | 121 (0.6) | 161 | 120 (0.6) | 0 | |
| | 2021 | 14 | 122 (3.0) | 29 | 121 (1.0) | 11 | 117 (1.8) | 0 | |
| | 2022 | 18 | 123 (2.7) | 2 | 121 (2.9) | 4 | 122 (3.3) | 1 | 106 |
| | 2023 | 158 | 109 (0.8) | 15 | 113 (2.2) | 2 | 124 | 0 | |
| Northern Pike Gill Net | 2019 | 4 | 88 (1.7) | 25 | 84 (1.0) | 1 | 102 | 0 | |
| | 2020 | 15 | 92 (1.5) | 19 | 87 (1.0) | 1 | 94 | 1 | 85 |
| | 2021 | 14 | 84 (1.4) | 21 | 81 (1.1) | 0 | | 0 | |
| | 2022 | 1 | 80 | 3 | 83 (2.0) | 3 | 79 (3.2) | 0 | |
| | 2023 | 1 | 92 | 10 | 82 (1.9) | 1 | 79 | 1 | 84 |
| Walleye Gill Net | 2019 | 16 | 87 (1.2) | 35 | 88 (1.0) | 9 | 90 (1.2) | 2 | 93 (4.7) |
| | 2020 | 35 | 88 (0.8) | 27 | 91 (0.8) | 10 | 93 (2.0) | 2 | 88 (3.9) |
| | 2021 | 41 | 85 (0.6) | 16 | 86 (1.3) | 6 | 82 (2.2) | 1 | 75 |
| | 2022 | 19 | 98 (10.8) | 24 | 83 (0.6) | 3 | 86 (2.8) | 0 | |
| | 2023 | 4 | 88 (3.0) | 21 | 83 (1.0) | 4 | 79 (2.2) | 1 | 87 |
| Yellow Perch Gill Net | 2019 | 132 | 106 (2.2) | 54 | 98 (0.9) | 6 | 91 (2.1) | 1 | 95 |
| | 2020 | 206 | 105 (0.5) | 54 | 100 (0.9) | 2 | 92 (3.0) | 0 | |
| | 2021 | 37 | 100 (1.2) | 16 | 94 (2.0) | 2 | 85 (5.4) | 0 | |
| | 2022 | 3 | 99 (3.7) | 0 | | 0 | | 0 | |
| | 2023 | 16 | 93 (2.1) | 0 | | 0 | | 0 | |

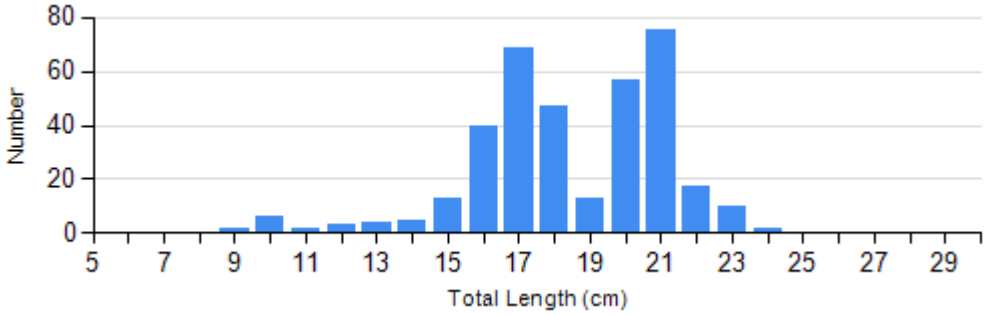
## Length Frequency Distribution

Length frequency histogram of species sampled by year.

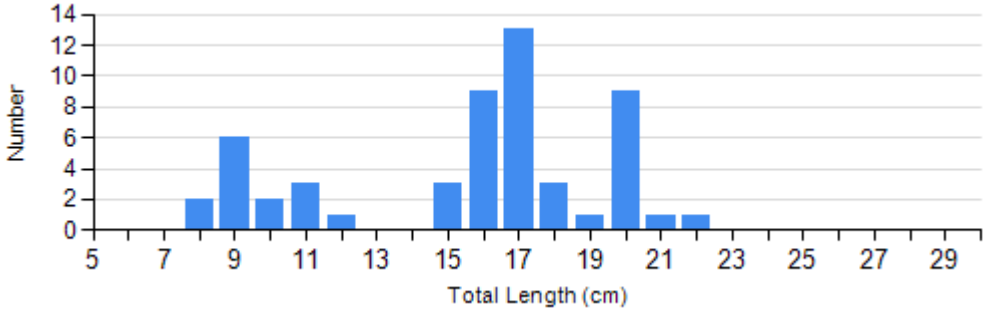
Species: Bluegill
Gear: frame net (std 3/4 in)



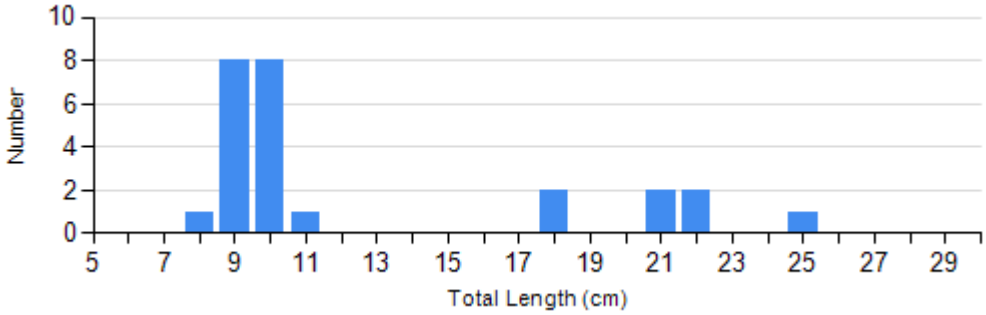

2019



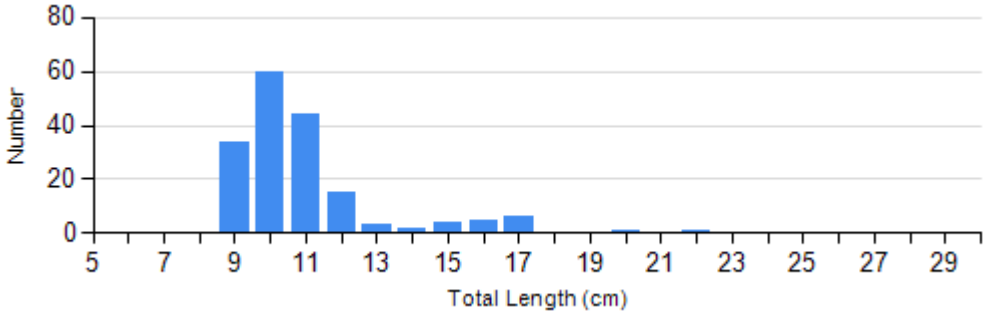

2020




2021

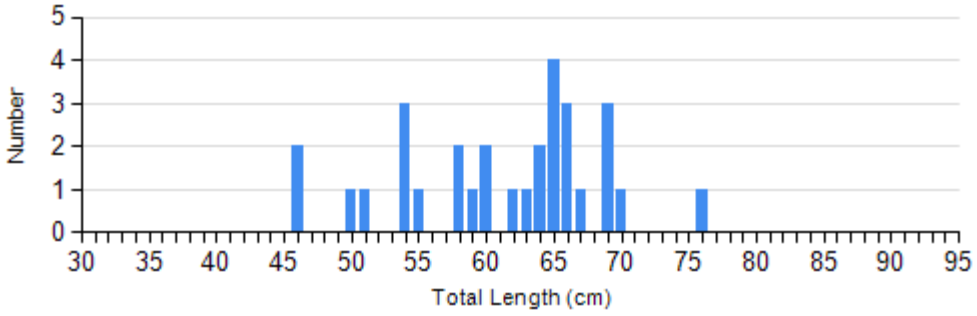



2022

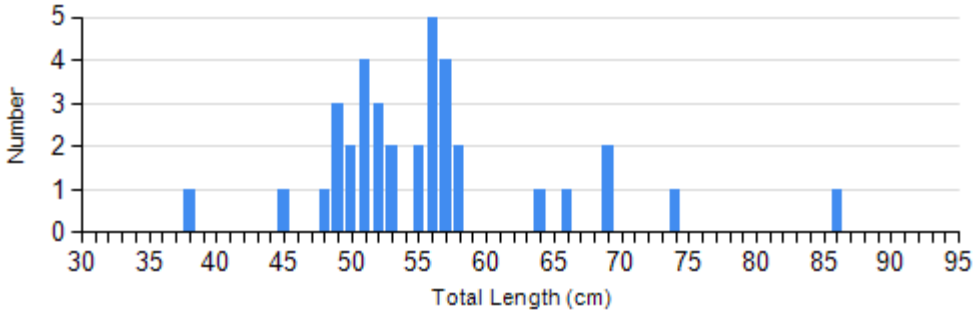



2023

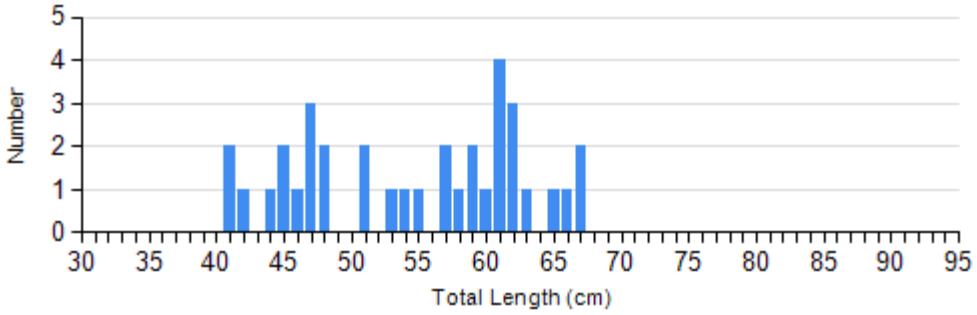
Species: Northern Pike
Gear: AFS std gill net



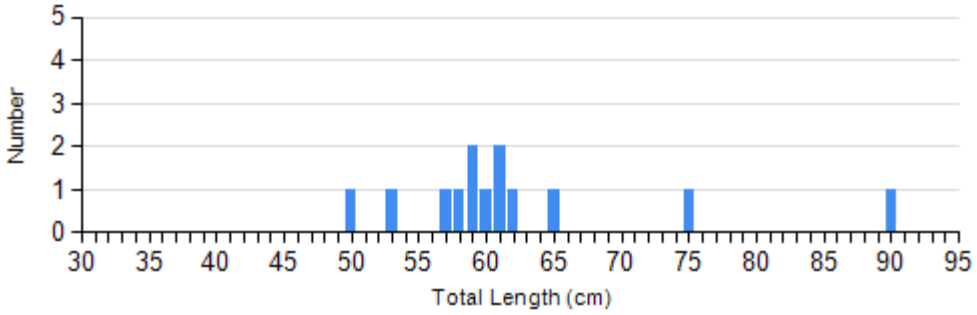

2019




2020



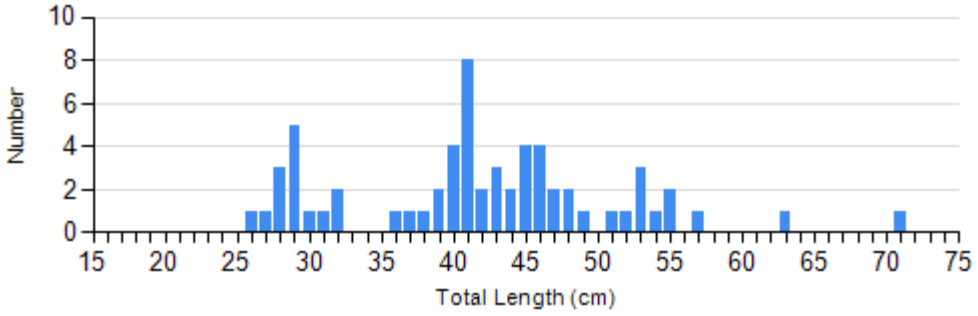

2021



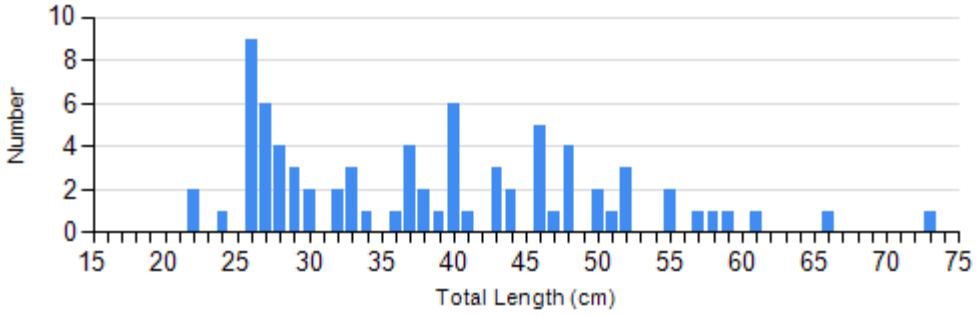

2023

Species: Walleye
Gear: AFS std gill net

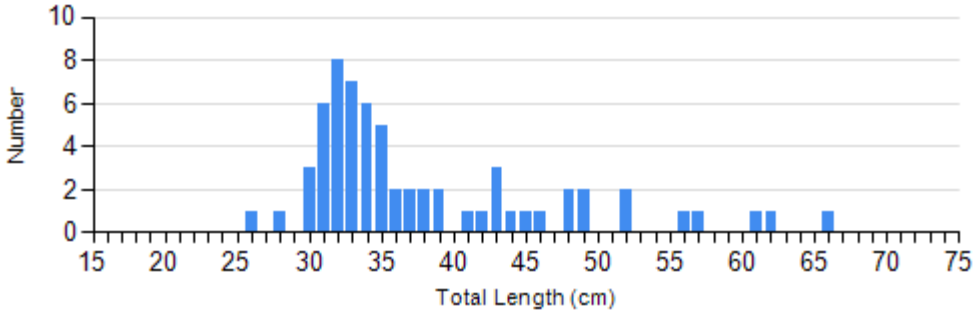
2019



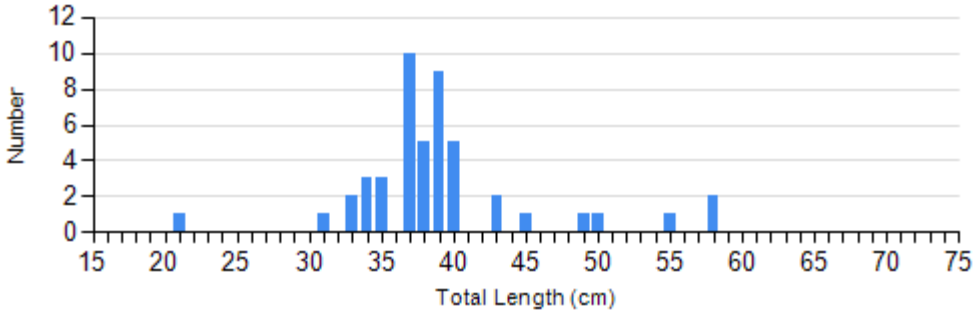

2020



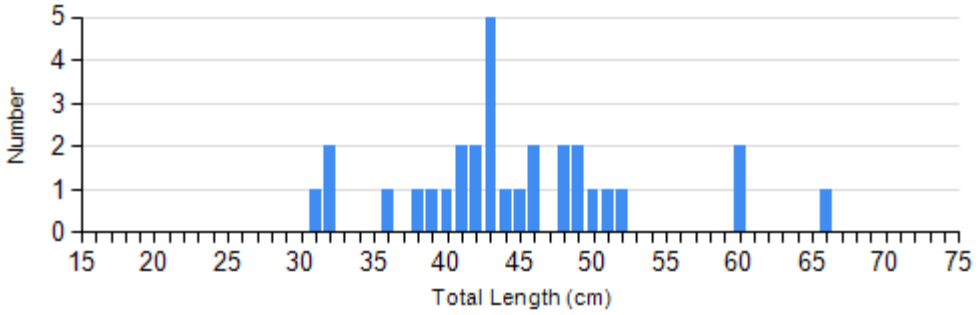

2021



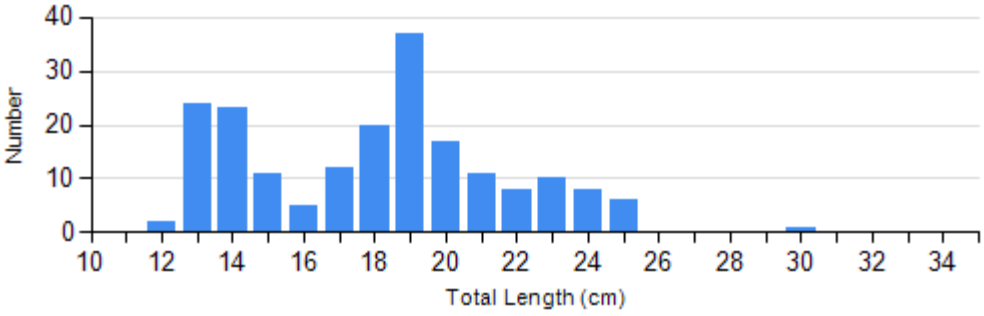

2022



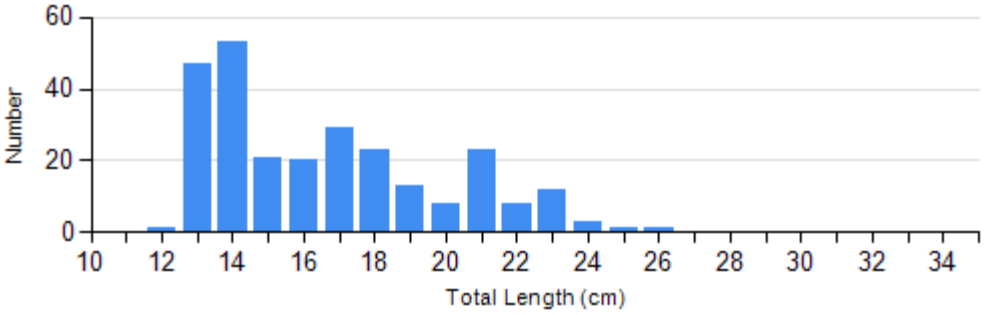

2023



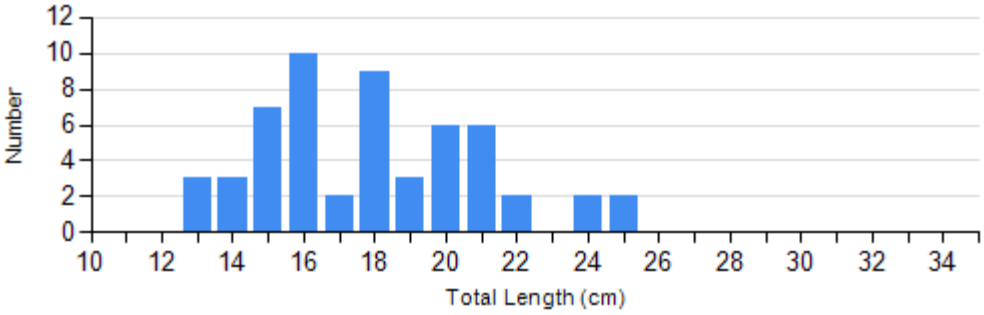
Species: Yellow Perch
Gear: AFS std gill net



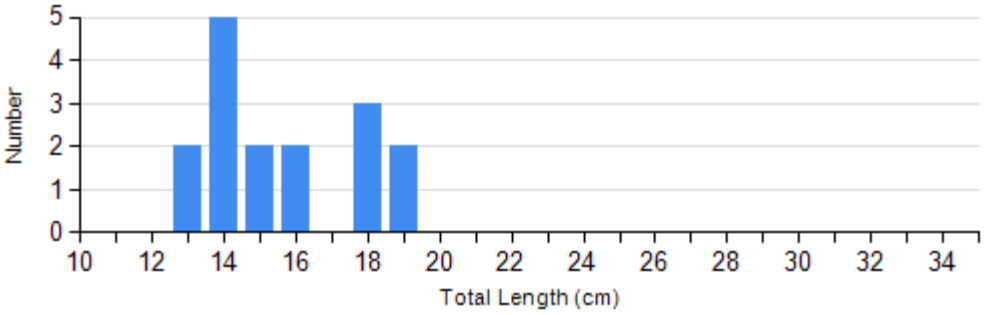

2019




2020




2021

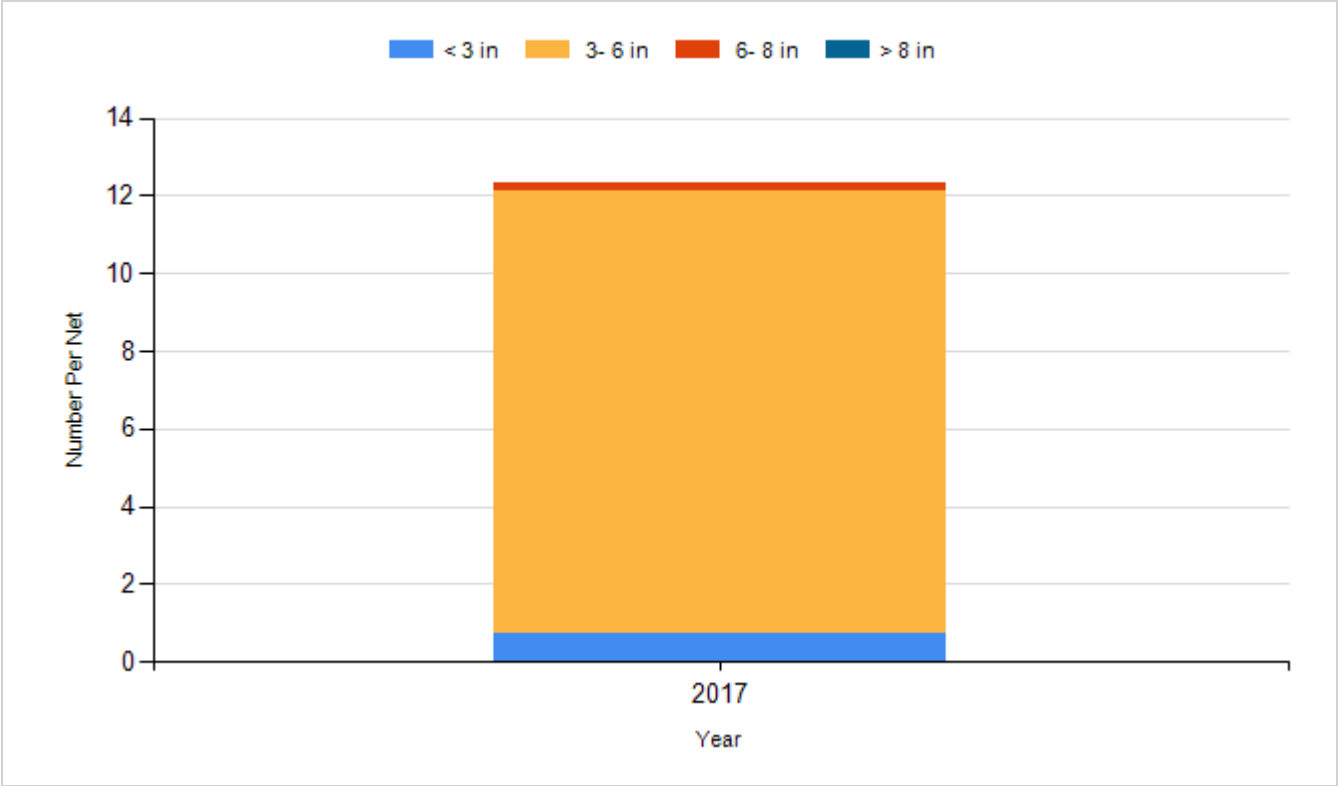



2023

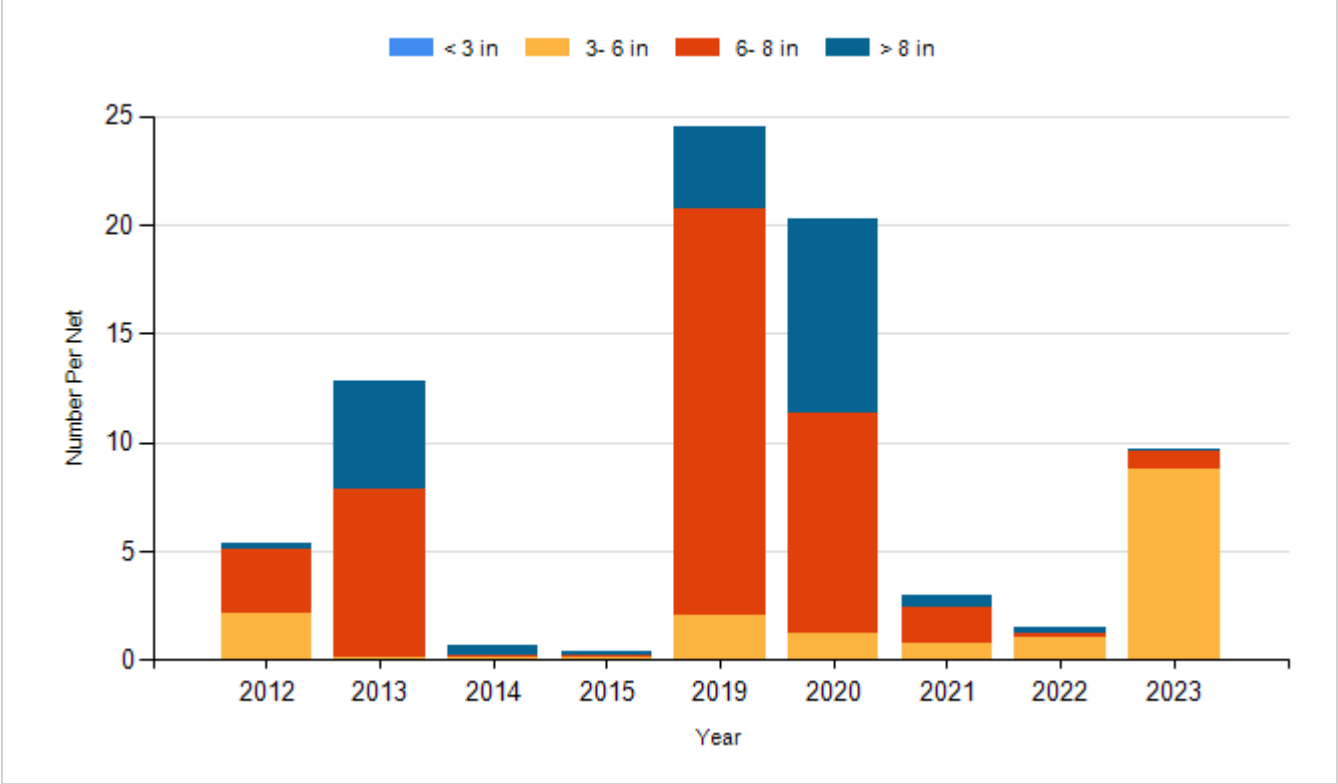
## Historic Fish Sizes and Relative Abundance

Size distribution per net by color for species sampled by year.

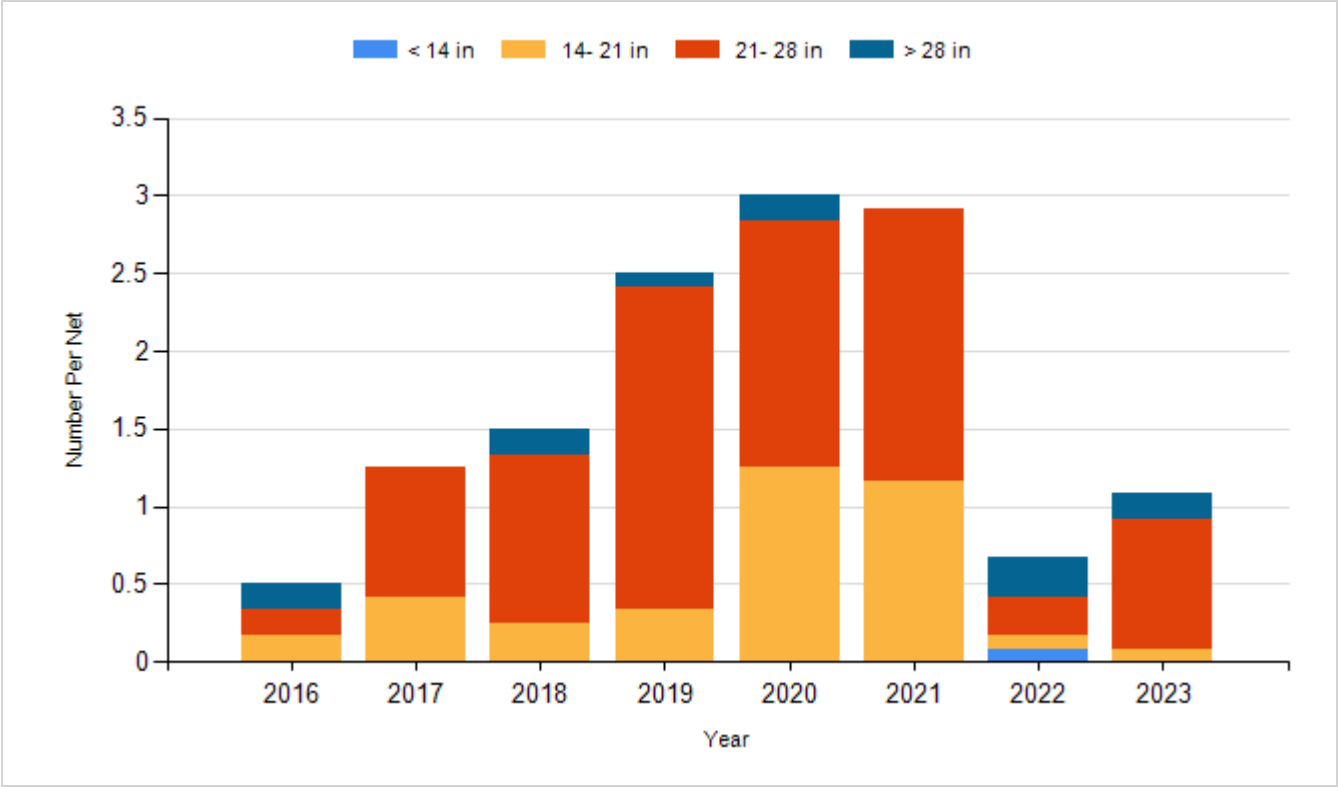
Species: Bluegill
Gear: AFS std frame net



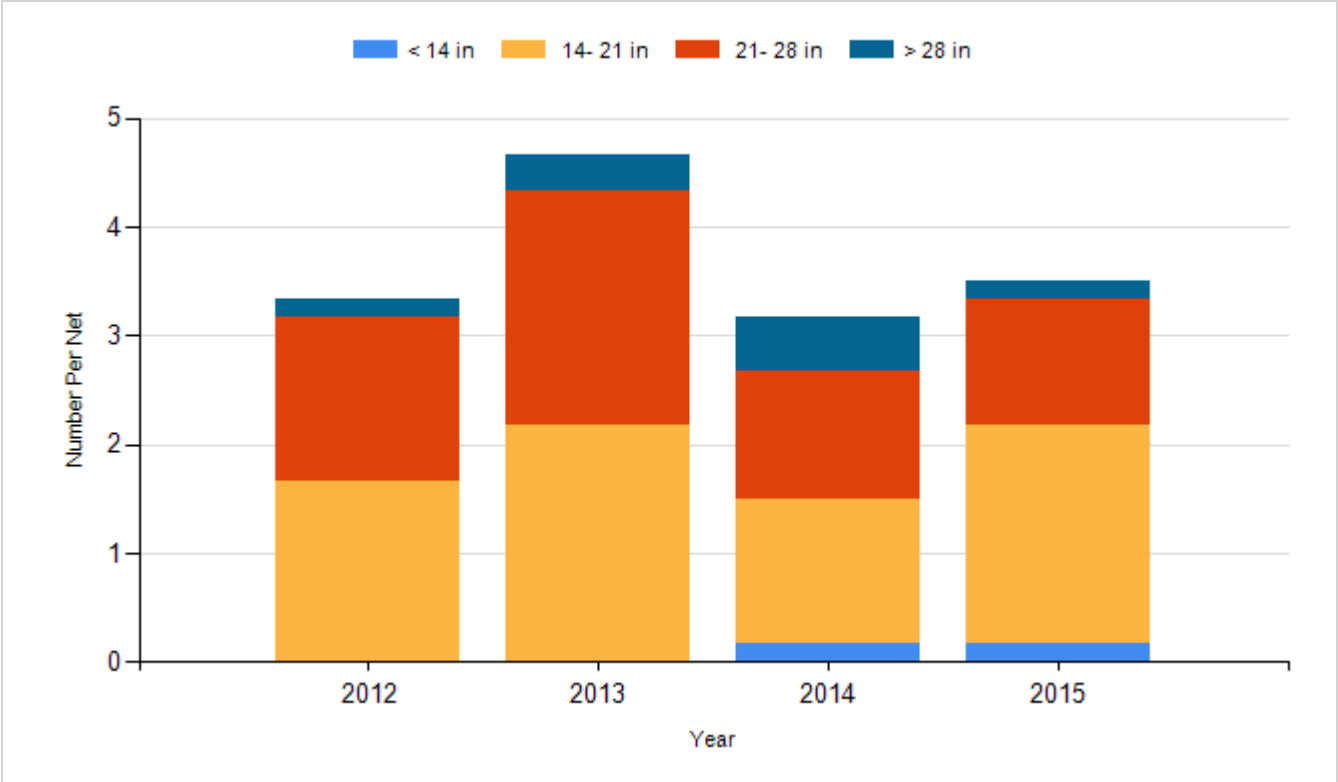

Species: Bluegill
Gear: frame net (std 3/4 in)



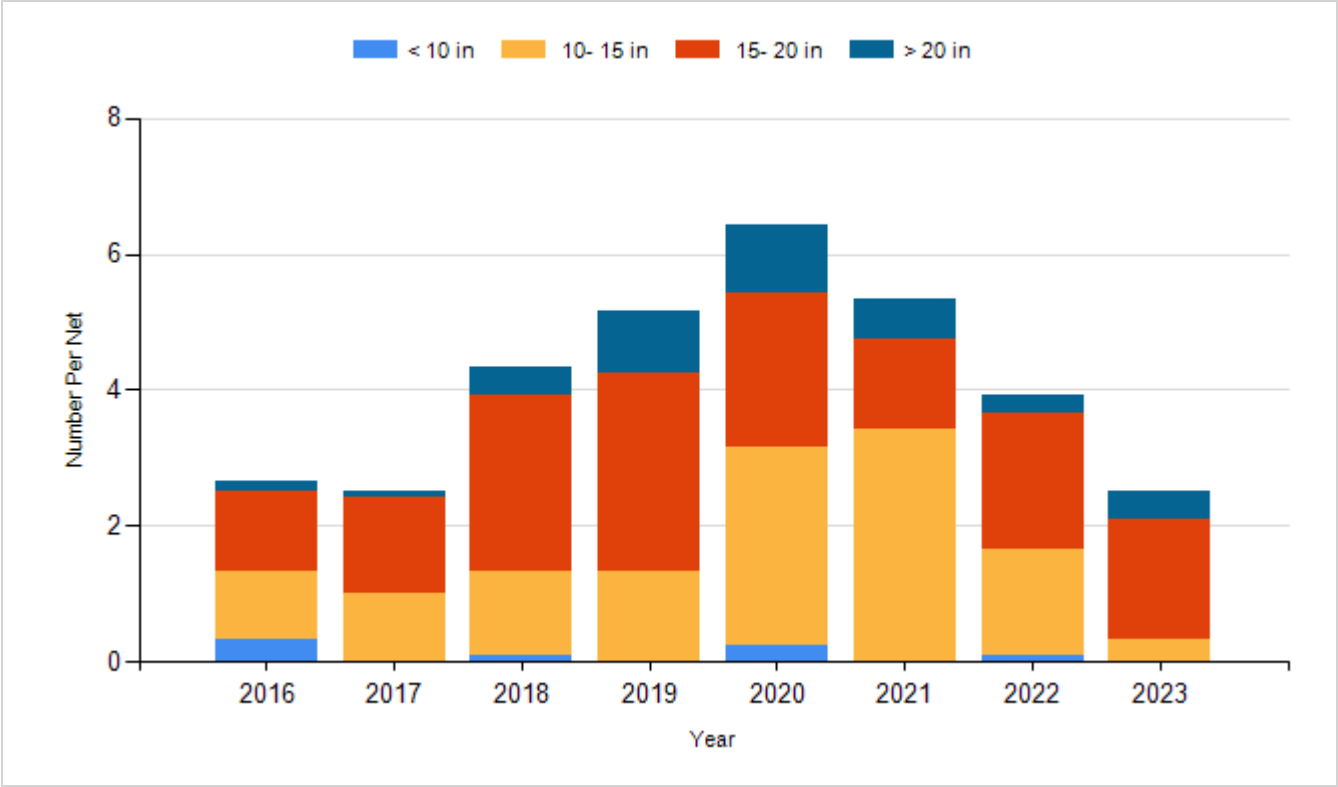
Species: Northern Pike
Gear: AFS std gill net



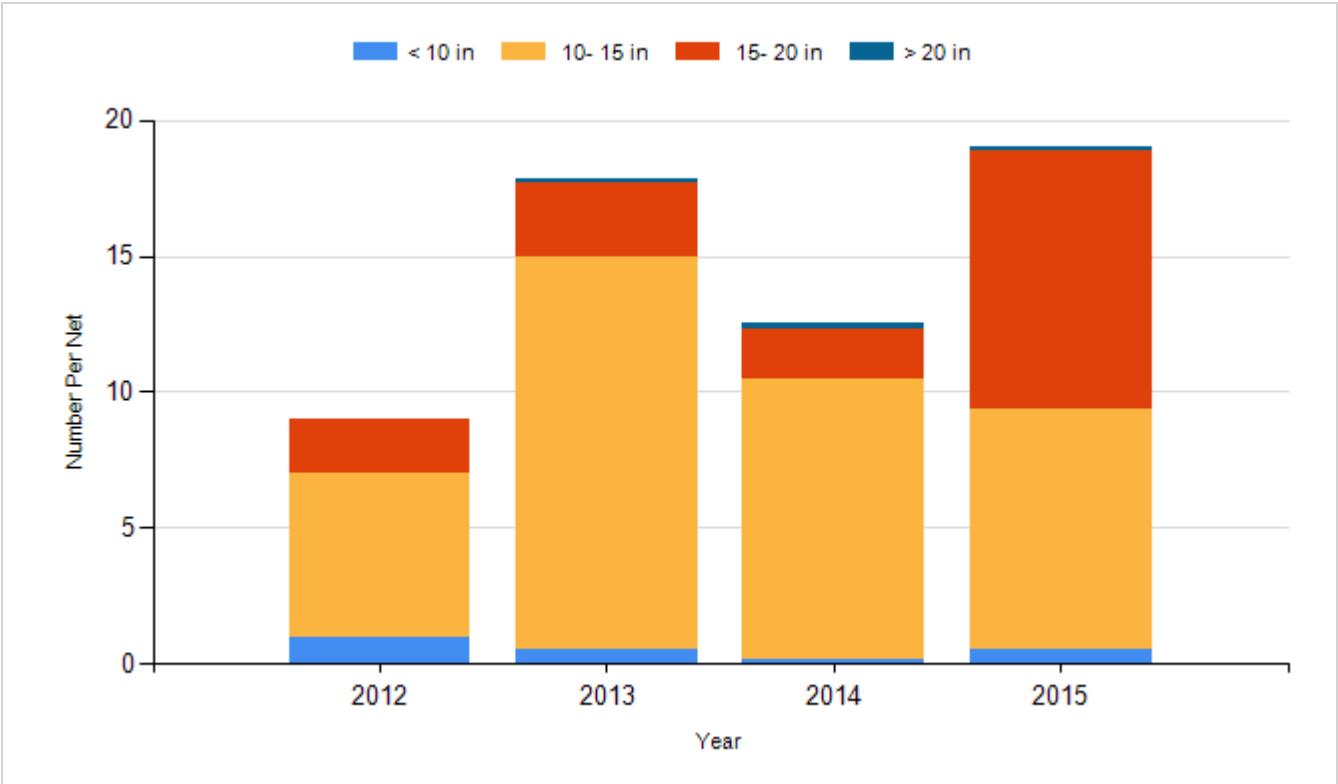

Species: Northern Pike
Gear: std exp gill net



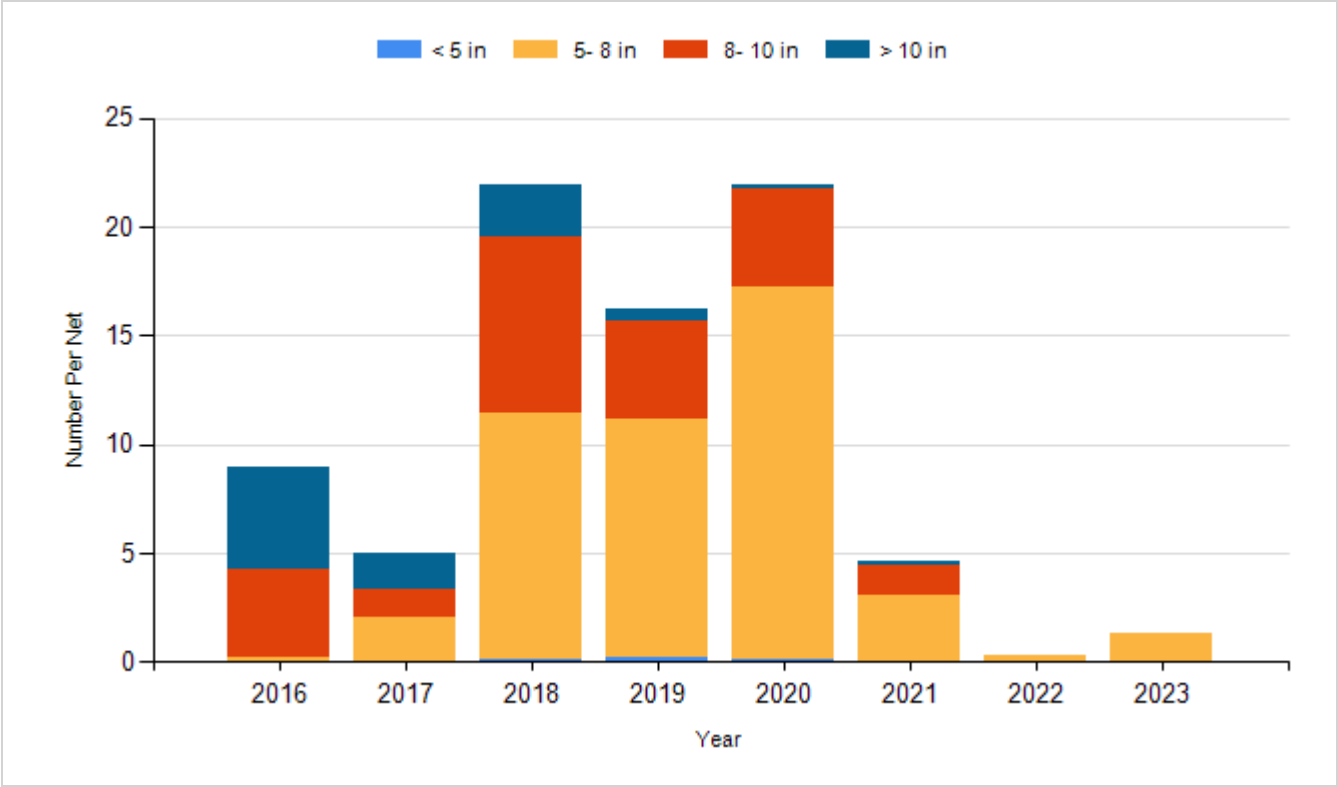
Species: Walleye
Gear: AFS std gill net



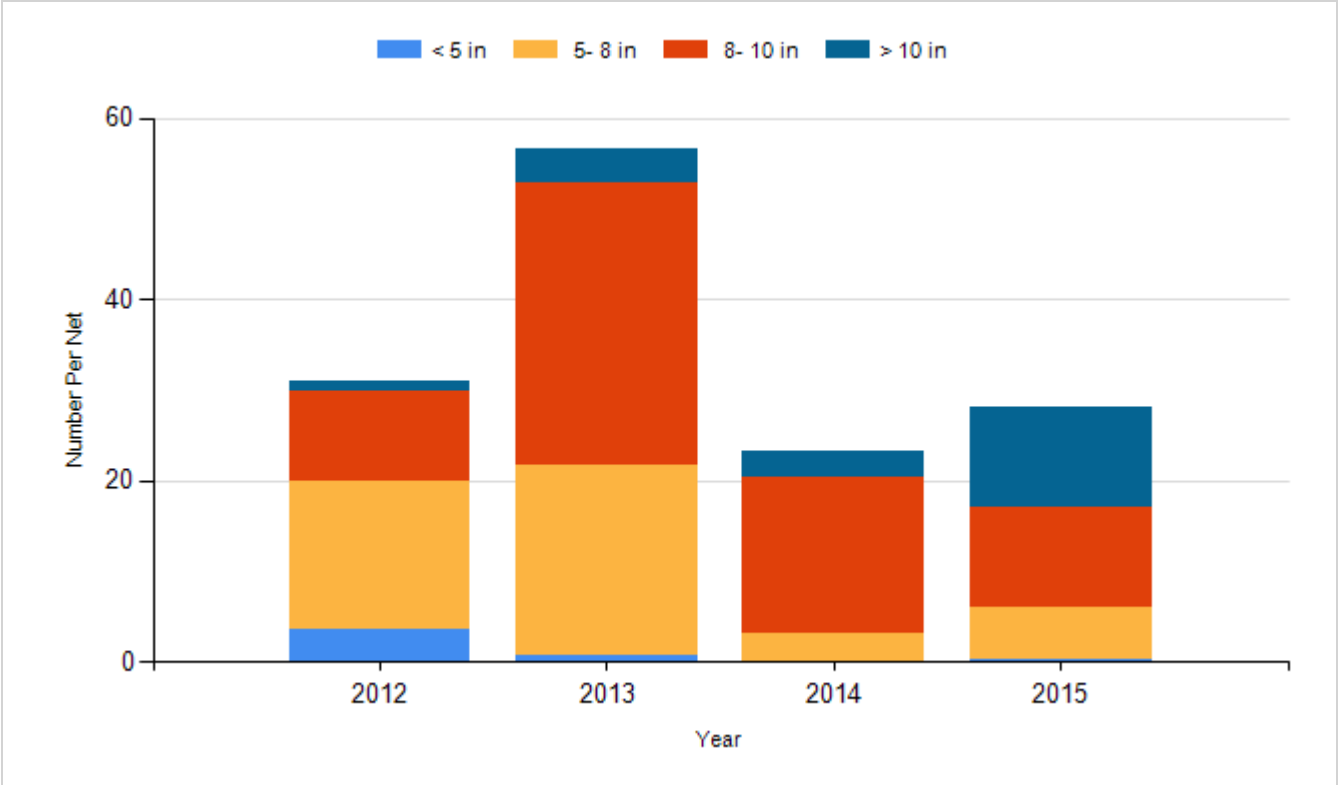

Species: Walleye
Gear: std exp gill net



Species: Yellow Perch
Gear: AFS std gill net




Species: Yellow Perch
Gear: std exp gill net



## Fish Stocking

Number of fish stocked by year, species, and size.

| Year | Species | Size | Number |
|---|---|---|---|
| 2013 | Walleye | Small Fingerling | 93,410 |
| 2015 | Walleye | Small Fingerling | 91,850 |
| 2017 | Walleye | Small Fingerling | 71,130 |
| 2018 | Walleye | Fry | 470,000 |
| 2021 | Walleye | Fry | 500,000 |
| 2022 | Walleye | Juvenile | 91,000 |
| 2023 | Walleye | Fry | 500,000 |

# SOUTH DAKOTA STATEWIDE FISHERIES SURVEY
## Pickerel, Day County
### UBS-Lake-358-000
### 2023

## Lake Information

| | | | |
|---|---|---|---|
| **Name:** | Pickerel | **Maximum Depth:** | 41 Feet |
| **County:** | Day | **Mean Depth:** | 16 Feet |
| | | **OHWM Elevation:** | 1,846 |
| **Surface Area:** | 989 Acres | **Outlet Elevation:** | 1,845 |

## Surveys and Investigations

Survey methods used by gear type, date, and effort.

| Gear | Date | Effort |
|---|---|---|
| AFS std gill net | Jun 20, 2023 | 4 net-nights |
| AFS std gill net | Jun 21, 2023 | 4 net-nights |
| AFS std gill net | Jun 22, 2023 | 4 net-nights |
| fall night EF-WAE | Sep 25, 2023 | 3000 seconds |
| frame net (std 3/4 in) | Jun 20, 2023 | 6 net-nights |
| frame net (std 3/4 in) | Jun 21, 2023 | 6 net-nights |
| frame net (std 3/4 in) | Jun 22, 2023 | 6 net-nights |

## Common Fish Species Present

Northern Pike

Bluegill

Black Crappie

Walleye

Smallmouth Bass

Yellow Perch

Rock Bass

White Bass

Black Bullhead

White Sucker

## Terminology

Catch per unit effort (**CPUE**) refers to the relative abundance of a species. It is defined as the number of fish captured per unit of effort (i.e., number of fish captured per net-night or number of fish captured per hour electrofishing). In this report CPUE is typically given for only stock-length fish (see length categories table for stock lengths).

A statewide effort to help make netting efforts comparable to all waters sampled across the state, occurred in 2017, with a switch to American Fisheries Society gill nets. Past gill netting efforts were completed with different style/types of nets and are not comparable side by side.

- **AFS std gill net** – 80 ft experimental gill net containing eight panels (10 ft each) of varying monofilament meshes of 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25 and 2.50 inches.
- **std experimental gill net for non-Missouri River waters** - 150 ft experimental gill net containing six panels (25 ft each) of varying monofilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.
- s**td experimental gill net for Missouri River reservoirs** – 300 ft experimental gill net containing six panels (50 ft each) of varying multifilament meshes of 0.5, 0.75, 1.00, 1.25, 1.50 and 2.00 inches.

$$CPUE = \frac{number\ of\ fish}{effort}$$

Population size structure is quantified using the indices proportional size distribution of quality-length fish (**PSD**) and proportional size distribution of preferred-length fish (**PSD-P**). These indices indicate the proportion of stock-length fish that are equal to or greater than a given length. Minimum lengths for stock, quality and preferred length fish are given in the length categories table.

$$PSD = \left(\frac{number\ of\ fish \geq quality\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

$$PSD - P = \left(\frac{number\ of\ fish \geq preferred\ length}{number\ of\ fish \geq stock\ length}\right) \text{x } 100$$

Relative weight (**Wr**) is used to quantify fish plumpness. Relative weight is the ratio of what a fish weighs (W) compared to a length-specific standard weight (Ws) multiplied by 100. Relative weight values of 95-105 are commonly cited as optimum values, but values in the 80s are common during summer sampling in South Dakota.

$$Wr = \left(\frac{W}{Ws}\right) \text{x } 100$$

Confidence intervals (**CI**) are provided for many of the estimates calculated in this report. The confidence interval provides a range in which the true mean is expected to fall. For example, with an 80% CI we are 80% confident that the interval contains the true value.

Length categories include stock (**S**), quality (**Q**), preferred (**P**), memorable (**M**) and trophy (**T**). Length categories for most species have been defined based on a percentage of the world record length for that species. Some species mentioned in this report do not have defined length categories. Length categories for species used in this report are provided in the following table. Measurements are the minimum total length for each category and are reported in inches (in) and centimeters (cm).

| | Stock | | Quality | | Preferred | | Memorable | | Trophy | |
|---|---|---|---|---|---|---|---|---|---|---|
| Species Name | (in) | (cm) | (in) | (cm) | (in) | (cm) | (in) | (cm) | (in) | (cm) |
| Black Bullhead | 6 | 15 | 9 | 23 | 12 | 30 | 15 | 38 | 18 | 46 |
| Black Crappie | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |
| Bluegill | 3 | 8 | 6 | 15 | 8 | 20 | 10 | 25 | 12 | 30 |
| Brown Trout | 8 | 20 | 12 | 30 | 16 | 40 | 20 | 50 | 18 | 46 |
| Channel Catfish | 11 | 28 | 16 | 41 | 24 | 61 | 28 | 71 | 36 | 91 |
| Freshwater Drum | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Lake Trout | 12 | 30 | 20 | 50 | 26 | 65 | 31 | 80 | 39 | 100 |
| Largemouth Bass | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Muskellunge | 20 | 51 | 30 | 76 | 38 | 97 | 42 | 107 | 50 | 127 |
| Northern Pike | 14 | 35 | 21 | 53 | 28 | 71 | 34 | 86 | 44 | 112 |
| Pumpkinseed | 3 | 8 | 6 | 15 | 8 | 20 | 10 | 25 | 12 | 30 |
| Rainbow Trout | 10 | 25 | 16 | 40 | 20 | 50 | 26 | 65 | 31 | 80 |
| Rudd | 6 | 15 | 10 | 25 | 12 | 30 | 15 | 38 | 19 | 48 |
| Sauger | 8 | 20 | 12 | 30 | 15 | 38 | 20 | 51 | 25 | 63 |
| Smallmouth Bass | 7 | 18 | 11 | 28 | 14 | 35 | 17 | 43 | 20 | 51 |
| Walleye | 10 | 25 | 15 | 38 | 20 | 51 | 25 | 63 | 30 | 76 |
| White Bass | 6 | 15 | 9 | 23 | 12 | 30 | 15 | 38 | 18 | 46 |
| White Crappie | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |
| Yellow Bullhead | 4 | 10 | 7 | 18 | 9 | 23 | 11 | 28 | 14 | 36 |
| Yellow Perch | 5 | 13 | 8 | 20 | 10 | 25 | 12 | 30 | 15 | 38 |

## Catch Summary of Stock Length Fish

Catch per unit effort (CPUE), proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) for species sampled in survey with 80% confidence interval (CI-80).

*** Methods/Species that ignore stock length**

| | | | Abundance | | Stock Density Indices | | | | Condition | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Sample Size (n) | CPUE | CI-80 | PSD | CI-80 | PSD-P | CI-80 | Wr | CI-80 |
| AFS std gill net | Black Crappie | 3 | 0.3 | 0.2 | 100 | | 67 | | 103 | 6 |
| | Bluegill | 9 | 0.8 | 0.4 | 89 | | 67 | | 121 | 2 |
| | Common Carp | 1 | 0.1 | 0.1 | 100 | | 100 | | 89 | |
| | Northern Pike | 13 | 1.1 | 0.5 | 92 | | 15 | | 83 | 2 |
| | Rock Bass | 5 | 0.3 | 0.3 | 75 | | 25 | | 106 | 5 |
| | Smallmouth Bass | 39 | 3.3 | 1.2 | 92 | | 67 | 11 | 97 | 1 |
| | Walleye | 30 | 2.5 | 0.8 | 87 | | 17 | 11 | 83 | 1 |
| | White Bass | 32 | 2.7 | 1.2 | 100 | | 100 | | 86 | 1 |
| | White Sucker | 9 | 0.8 | 0.4 | 100 | | 100 | | 101 | 3 |
| | Yellow Perch | 16 | 1.3 | 1.2 | 0 | | 0 | | 93 | 3 |
| frame net (std 3/4 in) | Black Bullhead | 77 | 4.3 | 3.0 | 100 | | 90 | 5 | 94 | 1 |
| | Black Crappie | 9 | 0.5 | 0.2 | 100 | | 100 | | 95 | 3 |
| | Bluegill | 175 | 9.7 | 4.8 | 10 | 3 | 1 | | 110 | 1 |
| | Largemouth Bass | 1 | 0.0 | 0.0 | 0 | | 0 | | | |
| | Northern Pike | 26 | 1.4 | 0.4 | 72 | 14 | 12 | | 79 | 2 |
| | Rock Bass | 127 | 6.9 | 2.0 | 59 | 6 | 8 | 4 | 101 | 1 |
| | Smallmouth Bass | 75 | 4.1 | 0.7 | 72 | 8 | 41 | 8 | 94 | 1 |
| | Walleye | 37 | 2.1 | 0.6 | 92 | | 32 | 12 | 83 | 1 |
| | White Bass | 80 | 4.4 | 3.3 | 100 | | 100 | | 84 | 1 |
| | White Sucker | 1 | 0.1 | 0.1 | 100 | | 100 | | 91 | |
| | Yellow Perch | 4 | 0.2 | 0.1 | 67 | | 0 | | 81 | 4 |

## 10-Year Catch Per Unit Effort by Gear and Species

Catch per unit effort (CPUE) and average (Avg) of species across 10 years using different gear types.

*** Methods/Species that ignore stock length**

| | | CPUE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Avg |
| AFS std frame net | Black Bullhead | | | | 1.3 | | | | | | | 1.30 |
| | Black Crappie | | | | 0.1 | | | | | | | 0.10 |
| | Bluegill | | | | 11.6 | | | | | | | 11.60 |
| | Northern Pike | | | | 0.2 | | | | | | | 0.20 |
| | Rock Bass | | | | 1.2 | | | | | | | 1.20 |
| | Smallmouth Bass | | | | 0.9 | | | | | | | 0.90 |
| | Walleye | | | | 0.2 | | | | | | | 0.20 |
| | White Bass | | | | 0.2 | | | | | | | 0.20 |
| | White Sucker | | | | 0.1 | | | | | | | 0.10 |
| | Yellow Perch | | | | 0.3 | | | | | | | 0.30 |
| AFS std gill net | Black Bullhead | | | 0.1 | 1.3 | 0.0 | 0.2 | 0.2 | 0.8 | 0.1 | 0.0 | 0.34 |
| | Black Crappie | | | 0.2 | 0.2 | 0.9 | 0.6 | 0.9 | 4.6 | 0.6 | 0.3 | 1.04 |
| | Bluegill | | | 0.2 | 0.1 | 1.3 | 2.1 | 1.9 | 0.8 | 0.3 | 0.8 | 0.94 |
| | Common Carp | | | 0.1 | 0.2 | 0.4 | 0.2 | 0.3 | 0.0 | 0.3 | 0.1 | 0.20 |
| | Northern Pike | | | 0.5 | 1.3 | 1.5 | 2.5 | 3.0 | 2.9 | 0.6 | 1.1 | 1.68 |
| | Rock Bass | | | 0.0 | 0.1 | 0.5 | 0.2 | 1.1 | 0.1 | 0.5 | 0.3 | 0.35 |
| | Smallmouth Bass | | | 2.1 | 1.4 | 2.0 | 1.3 | 2.3 | 2.7 | 1.4 | 3.3 | 2.06 |
| | Walleye | | | 2.3 | 2.5 | 4.3 | 5.2 | 6.2 | 5.3 | 3.8 | 2.5 | 4.01 |
| | White Bass | | | 2.9 | 1.9 | 1.5 | 1.8 | 5.4 | 1.9 | 3.9 | 2.7 | 2.75 |
| | White Sucker | | | 1.1 | 1.7 | 1.8 | 1.6 | 0.8 | 1.5 | 0.9 | 0.8 | 1.28 |
| | Yellow Perch | | | 8.9 | 5.0 | 21.8 | 16.1 | 21.8 | 4.6 | 0.3 | 1.3 | 9.98 |
| boat shocker (day) | Smallmouth Bass | | | | | | 59.0 | | | | | 59.00 |
| boat shocker (night) | Walleye* | 10.0 | 44.4 | | 28.0 | | | | | | | 27.47 |
| boat shocker (night, DC) | Smallmouth Bass | | 110.0 | | | | | | | | | 110.00 |
| fall night EF-WAE* | Walleye | | | | | 76.0 | | | 42.0 | 20.0 | | 46.00 |
| frame net (std 3/4 in) | Black Bullhead | 10.1 | 10.9 | | | | 6.6 | 1.7 | 0.2 | 7.3 | 4.3 | 5.87 |
| | Black Crappie | 1.0 | 0.9 | | | | 0.7 | 0.5 | 0.4 | 0.3 | 0.5 | 0.61 |
| | Bluegill | 0.6 | 0.4 | | | | 24.5 | 20.3 | 3.0 | 1.5 | 9.7 | 8.57 |
| | Common Carp | 0.0 | 0.1 | | | | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.03 |
| | Largemouth Bass | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 |
| | Northern Pike | 0.2 | 0.5 | | | | 0.4 | 0.3 | 0.7 | 1.0 | 1.4 | 0.64 |
| | Rock Bass | 6.0 | 8.5 | | | | 3.4 | 3.3 | 7.7 | 2.5 | 6.9 | 5.47 |

| | | CPUE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Avg |
| frame net (std 3/4 in) | Smallmouth Bass | 2.3 | 2.3 | | | | 2.6 | 2.7 | 2.9 | 1.3 | 4.1 | 2.60 |
| | Walleye | 0.6 | 0.3 | | | | 0.2 | 0.2 | 0.3 | 0.4 | 2.1 | 0.59 |
| | Western Painted Turtle | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 |
| | White Bass | 0.1 | 0.2 | | | | 0.6 | 0.3 | 0.1 | 0.1 | 4.4 | 0.83 |
| | White Sucker | 0.2 | 0.2 | | | | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.11 |
| | Yellow Perch | 0.2 | 0.1 | | | | 0.6 | 2.9 | 0.9 | 0.9 | 0.2 | 0.83 |
| spring day EF* | Smallmouth Bass | | | | | | | | | 24.9 | | 24.90 |
| spring night EF-SMB* | Smallmouth Bass | | | | | 6.0 | | | | | | 6.00 |
| std exp gill net | Black Bullhead | 0.2 | 3.2 | | | | | | | | | 1.70 |
| | Black Crappie | 7.2 | 2.5 | | | | | | | | | 4.85 |
| | Bluegill | 0.0 | 0.0 | | | | | | | | | 0.00 |
| | Common Carp | 0.2 | 0.3 | | | | | | | | | 0.25 |
| | Northern Pike | 3.0 | 3.3 | | | | | | | | | 3.15 |
| | Rock Bass | 0.0 | 0.0 | | | | | | | | | 0.00 |
| | Smallmouth Bass | 2.2 | 1.7 | | | | | | | | | 1.95 |
| | Spottail Shiner | 0.0 | 0.0 | | | | | | | | | 0.00 |
| | Walleye | 12.3 | 18.5 | | | | | | | | | 15.40 |
| | White Bass | 3.0 | 4.0 | | | | | | | | | 3.50 |
| | White Sucker | 1.5 | 1.7 | | | | | | | | | 1.60 |
| | Yellow Perch | 23.2 | 27.8 | | | | | | | | | 25.50 |

## 10-Year Size Structure and Condition Statistics by Gear and Species

Species proportional size distribution (PSD), proportional size distribution of preferred length fish (PSD-P), and relative weight (Wr) collected by different gear types across 10 years.

| | | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Index | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| AFS std frame net | Black Bullhead | PSD | | | | 96 | | | | | | |
| | | PSD-P | | | | 75 | | | | | | |
| | | Wr | | | | 95 | | | | | | |
| | Black Crappie | PSD | | | | 100 | | | | | | |
| | | PSD-P | | | | 100 | | | | | | |
| | | Wr | | | | 86 | | | | | | |
| | Bluegill | PSD | | | | 2 | | | | | | |
| | | PSD-P | | | | 0 | | | | | | |
| | | Wr | | | | 123 | | | | | | |
| | Northern Pike | PSD | | | | 100 | | | | | | |
| | | PSD-P | | | | 0 | | | | | | |
| | | Wr | | | | 84 | | | | | | |
| | Rock Bass | PSD | | | | 32 | | | | | | |
| | | PSD-P | | | | 9 | | | | | | |
| | | Wr | | | | 117 | | | | | | |
| | Smallmouth Bass | PSD | | | | 38 | | | | | | |
| | | PSD-P | | | | 19 | | | | | | |
| | | Wr | | | | 95 | | | | | | |
| | Walleye | PSD | | | | 100 | | | | | | |
| | | PSD-P | | | | 25 | | | | | | |
| | | Wr | | | | 79 | | | | | | |
| | White Bass | PSD | | | | 100 | | | | | | |
| | | PSD-P | | | | 100 | | | | | | |
| | | Wr | | | | 91 | | | | | | |
| | White Sucker | PSD | | | | 100 | | | | | | |
| | | PSD-P | | | | 100 | | | | | | |
| | | Wr | | | | 94 | | | | | | |
| | Yellow Perch | PSD | | | | 0 | | | | | | |
| | | PSD-P | | | | 0 | | | | | | |
| | | Wr | | | | 94 | | | | | | |
| AFS std gill net | Black Bullhead | PSD | | | 100 | 100 | | 100 | 100 | 100 | 0 | |
| | | PSD-P | | | 100 | 73 | | 50 | 0 | 70 | 0 | |
| | | Wr | | | 92 | 98 | | 97 | 99 | 102 | 80 | |

| | | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Index | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| AFS std gill net | Black Crappie | PSD | | | 100 | 100 | 91 | 86 | 73 | 96 | 100 | 100 |
| | | PSD-P | | | 100 | 100 | 91 | 57 | 27 | 29 | 100 | 67 |
| | | Wr | | | 98 | 90 | 93 | 101 | 114 | 112 | 109 | 103 |
| | Bluegill | PSD | | | 100 | 0 | 81 | 100 | 100 | 100 | 100 | 89 |
| | | PSD-P | | | 100 | 0 | 0 | 28 | 52 | 44 | 100 | 67 |
| | | Wr | | | 124 | 119 | 122 | 117 | 119 | 115 | 115 | 121 |
| | Northern Pike | PSD | | | 67 | 67 | 83 | 87 | 58 | 60 | 86 | 92 |
| | | PSD-P | | | 33 | 0 | 11 | 3 | 6 | 0 | 43 | 15 |
| | | Wr | | | 78 | 89 | 86 | 85 | 89 | 82 | 81 | 83 |
| | Rock Bass | PSD | | | | 100 | 50 | 100 | 54 | 0 | 100 | 75 |
| | | PSD-P | | | | 0 | 17 | 0 | 0 | 0 | 17 | 25 |
| | | Wr | | | | 100 | 105 | 106 | 112 | 108 | 108 | 106 |
| | Smallmouth Bass | PSD | | | 64 | 94 | 71 | 94 | 85 | 84 | 71 | 92 |
| | | PSD-P | | | 40 | 59 | 46 | 81 | 56 | 56 | 41 | 67 |
| | | Wr | | | 90 | 94 | 96 | 92 | 94 | 94 | 93 | 97 |
| | Walleye | PSD | | | 57 | 60 | 71 | 74 | 53 | 36 | 59 | 87 |
| | | PSD-P | | | 7 | 3 | 10 | 18 | 16 | 11 | 7 | 17 |
| | | Wr | | | 83 | 88 | 85 | 88 | 90 | 85 | 89 | 83 |
| | White Bass | PSD | | | 100 | 100 | 100 | 100 | 94 | 100 | 100 | 100 |
| | | PSD-P | | | 100 | 100 | 89 | 100 | 82 | 91 | 100 | 100 |
| | | Wr | | | 90 | 94 | 89 | 88 | 93 | 93 | 90 | 86 |
| | White Sucker | PSD | | | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | | PSD-P | | | 100 | 95 | 95 | 100 | 100 | 100 | 100 | 100 |
| | | Wr | | | 108 | 112 | 108 | 106 | 113 | 106 | 113 | 101 |
| | Yellow Perch | PSD | | | 98 | 60 | 48 | 32 | 21 | 33 | 0 | 0 |
| | | PSD-P | | | 52 | 33 | 11 | 4 | 1 | 4 | 0 | 0 |
| | | Wr | | | 109 | 101 | 100 | 103 | 104 | 97 | 99 | 93 |
| boat shocker (day) | Smallmouth Bass | PSD | | | | | | 83 | | | | |
| | | PSD-P | | | | | | 37 | | | | |
| | | Wr | | | | | | 96 | | | | |
| boat shocker (night) | Walleye | PSD | 0 | 0 | | 0 | | | | | | |
| | | PSD-P | 0 | 0 | | 0 | | | | | | |
| | | Wr | 92 | 94 | | 93 | | | | | | |
| boat shocker (night, DC) | Smallmouth Bass | PSD | | 60 | | | | | | | | |
| | | PSD-P | | 12 | | | | | | | | |
| | | Wr | | 91 | | | | | | | | |

| | | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Index | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| frame net (std 3/4 in) | Black Bullhead | PSD | 63 | 82 | | | | 82 | 70 | 100 | 72 | 100 |
| | | PSD-P | 48 | 31 | | | | 51 | 20 | 50 | 58 | 90 |
| | | Wr | 89 | 98 | | | | 95 | 99 | 98 | 96 | 94 |
| | Black Crappie | PSD | 100 | 94 | | | | 42 | 89 | 63 | 100 | 100 |
| | | PSD-P | 94 | 94 | | | | 17 | 33 | 25 | 40 | 100 |
| | | Wr | 100 | 95 | | | | 106 | 105 | 107 | 108 | 95 |
| | Bluegill | PSD | 82 | 71 | | | | 92 | 94 | 74 | 28 | 10 |
| | | PSD-P | 73 | 43 | | | | 15 | 44 | 20 | 20 | 1 |
| | | Wr | 118 | 129 | | | | 120 | 120 | 120 | 122 | 110 |
| | Northern Pike | PSD | 67 | 11 | | | | 100 | 67 | 62 | 53 | 72 |
| | | PSD-P | 33 | 0 | | | | 13 | 0 | 15 | 6 | 12 |
| | | Wr | 73 | 84 | | | | 79 | 85 | 78 | 78 | 79 |
| | Rock Bass | PSD | 70 | 68 | | | | 40 | 24 | 36 | 50 | 59 |
| | | PSD-P | 9 | 20 | | | | 6 | 0 | 2 | 0 | 8 |
| | | Wr | 105 | 109 | | | | 115 | 111 | 110 | 110 | 101 |
| | Smallmouth Bass | PSD | 43 | 29 | | | | 63 | 47 | 42 | 55 | 72 |
| | | PSD-P | 12 | 7 | | | | 39 | 29 | 23 | 36 | 41 |
| | | Wr | 88 | 94 | | | | 90 | 94 | 91 | 109 | 94 |
| | Walleye | PSD | 40 | 100 | | | | 75 | 75 | 20 | 100 | 92 |
| | | PSD-P | 0 | 0 | | | | 25 | 75 | 0 | 29 | 32 |
| | | Wr | 81 | 79 | | | | 73 | 81 | 82 | 81 | 83 |
| | White Bass | PSD | 100 | 100 | | | | 100 | 100 | 100 | 100 | 100 |
| | | PSD-P | 100 | 100 | | | | 100 | 100 | 100 | 100 | 100 |
| | | Wr | 86 | 93 | | | | 86 | 93 | 87 | 96 | 84 |
| | White Sucker | PSD | 100 | 100 | | | | 100 | 100 | 100 | | 100 |
| | | PSD-P | 100 | 100 | | | | 100 | 100 | 100 | | 100 |
| | | Wr | | 101 | | | | 95 | 97 | 108 | | 91 |
| | Yellow Perch | PSD | 100 | 50 | | | | 18 | 21 | 13 | 47 | 67 |
| | | PSD-P | 0 | 50 | | | | 9 | 0 | 0 | 7 | 0 |
| | | Wr | 92 | 105 | | | | 89 | 94 | 92 | 100 | 81 |
| spring day EF | Smallmouth Bass | PSD | | | | | | | | | 100 | |
| | | PSD-P | | | | | | | | | 96 | |
| | | Wr | | | | | | | | | 94 | |
| spring night EF-SMB | Smallmouth Bass | PSD | | | | | 83 | | | | | |
| | | PSD-P | | | | | 33 | | | | | |
| | | Wr | | | | | 89 | | | | | |

| | | | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear | Species | Index | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| std exp gill net | Black Bullhead | PSD | 100 | 89 | | | | | | | | |
| | | PSD-P | 100 | 26 | | | | | | | | |
| | | Wr | 94 | 98 | | | | | | | | |
| | Black Crappie | PSD | 100 | 100 | | | | | | | | |
| | | PSD-P | 88 | 100 | | | | | | | | |
| | | Wr | 103 | 96 | | | | | | | | |
| | Northern Pike | PSD | 56 | 40 | | | | | | | | |
| | | PSD-P | 17 | 5 | | | | | | | | |
| | | Wr | 80 | 80 | | | | | | | | |
| | Smallmouth Bass | PSD | 46 | 90 | | | | | | | | |
| | | PSD-P | 0 | 50 | | | | | | | | |
| | | Wr | 95 | 86 | | | | | | | | |
| | Walleye | PSD | 16 | 52 | | | | | | | | |
| | | PSD-P | 1 | 1 | | | | | | | | |
| | | Wr | 86 | 87 | | | | | | | | |
| | White Bass | PSD | 100 | 100 | | | | | | | | |
| | | PSD-P | 94 | 100 | | | | | | | | |
| | | Wr | 96 | 94 | | | | | | | | |
| | White Sucker | PSD | 100 | 100 | | | | | | | | |
| | | PSD-P | 100 | 100 | | | | | | | | |
| | | Wr | 108 | 111 | | | | | | | | |
| | Yellow Perch | PSD | 86 | 79 | | | | | | | | |
| | | PSD-P | 12 | 40 | | | | | | | | |
| | | Wr | 108 | 110 | | | | | | | | |

## Length at Capture

Mean length at capture by age across years sampled, sample size (N).

Species: Black Crappie

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2019 | 14 | | 141 (8) | 215 (4) | | | | | | 314 (1) | 314 (1) |
| 2017 | 15 | 82 (13) | | | | | | | | | 321 (2) |
| 2015 | 16 | | | 175 (1) | | 273 (10) | | | | 300 (1) | 313 (4) |
| 2014 | 18 | | | | 253 (8) | | | | | 298 (10) | |

Species: Bluegill

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 174 | | 108 (157) | 164 (15) | 175 (2) | 226 (1) | | | | | |
| 2022 | 25 | | 99 (18) | 185 (2) | 219 (4) | | 254 (1) | | | | |
| 2020 | 365 | | 120 (20) | 173 (175) | 210 (149) | 231 (21) | | | | | |
| 2019 | 441 | | 97 (21) | 175 (355) | 212 (65) | | | | | | |

Species: Smallmouth Bass

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2019 | 43 | | 229 (1) | 259 (8) | 331 (30) | 335 (3) | 335 (1) | | | | |
| 2018 | 6 | | | 254 (1) | | 341 (4) | 355 (1) | | | | |
| 2015 | 110 | | 193 (7) | 255 (38) | 304 (13) | 330 (35) | 341 (6) | 365 (1) | 391 (6) | 415 (2) | 467 (2) |

Species: Walleye

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 30 | | 319 (3) | 387 (1) | 402 (3) | 427 (7) | 460 (6) | | 530 (4) | 579 (2) | 492 (4) |
| 2022 | 47 | 211 (1) | 310 (1) | 345 (6) | 389 (31) | 393 (1) | | 459 (1) | 587 (1) | 473 (3) | 528 (2) |
| 2021 | 64 | | 286 (3) | 335 (37) | 406 (9) | 418 (1) | 486 (6) | 530 (2) | | | 568 (6) |
| 2020 | 77 | | 275 (28) | 371 (17) | 418 (5) | 480 (6) | 481 (5) | 536 (6) | | 511 (4) | 578 (6) |
| 2019 | 62 | | 295 (14) | 378 (2) | 419 (21) | 459 (4) | 502 (9) | | 490 (3) | 502 (5) | 571 (4) |

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2018 | 52 | 180 (1) | 311 (3) | 367 (16) | 443 (1) | 460 (15) | 474 (2) | 457 (5) | 463 (7) | | 677 (2) |
| 2017 | 30 | | 325 (10) | 376 (3) | 420 (9) | | 478 (3) | 450 (4) | 414 (1) | | |
| 2016 | 32 | 197 (4) | 296 (1) | 356 (10) | 372 (1) | 420 (9) | 422 (6) | | | | 645 (1) |
| 2015 | 114 | 186 (3) | 298 (28) | 373 (25) | 388 (37) | 410 (19) | | 604 (1) | 427 (1) | | |
| 2014 | 75 | 184 (1) | 307 (5) | 351 (41) | 367 (23) | 463 (1) | 416 (1) | 406 (1) | 443 (1) | | 556 (1) |

Species: Yellow Perch

| | | Mean Length (expanded sample number) at capture by age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| 2023 | 16 | | 147 (9) | 175 (5) | 189 (2) | | | | | | |
| 2022 | 3 | | | 154 (3) | | | | | | | |
| 2021 | 55 | | 137 (4) | 167 (28) | 199 (12) | 223 (9) | 219 (3) | | | | |
| 2020 | 263 | | 142 (107) | 170 (87) | 210 (52) | 231 (17) | | | | | |
| 2019 | 195 | | 142 (62) | 194 (100) | 233 (30) | 243 (2) | | 302 (1) | | | |
| 2018 | 263 | | 153 (122) | 216 (108) | 249 (10) | 266 (8) | 280 (2) | 273 (10) | 310 (3) | 274 (1) | |
| 2017 | 60 | | 171 (25) | 223 (11) | 257 (12) | 266 (2) | 266 (4) | 286 (3) | 290 (3) | | |
| 2016 | 107 | | 164 (1) | 209 (10) | 237 (18) | 247 (26) | 258 (26) | 272 (24) | 294 (1) | | |
| 2015 | 168 | 100 (1) | 157 (16) | 196 (24) | 238 (50) | 255 (46) | 260 (23) | 249 (4) | | | |
| 2014 | 139 | | 146 (6) | 202 (27) | 229 (67) | 240 (38) | 234 (3) | | | | |

## Fish Condition

Mean relative weight (Wr) by sample size (N), length category stock to quality (S-Q), quality to preferred (Q-P), preferred to memorable (P-M), and memorable (M) for species collected across survey years with standard error (SE).

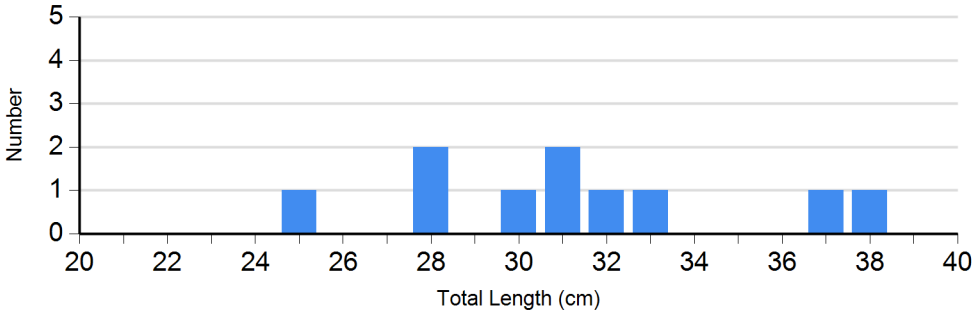
| | | Length Groups | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | S-Q | | Q-P | | P-M | | M | |
| Species | Year | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) |
| Black Bullhead Gill Net | 2019 | 0 | | 1 | 87 | 1 | 107 | 0 | |
| | 2020 | 0 | | 2 | 99 (0.0) | 0 | | 0 | |
| | 2021 | 0 | | 3 | 102 (6.2) | 6 | 101 (6.6) | 1 | 100 |
| | 2022 | 1 | 80 | 0 | | 0 | | 0 | |
| Black Crappie Frame Net | 2019 | 7 | 114 (4.7) | 3 | 104 (5.4) | 0 | | 2 | 80 (2.3) |
| | 2020 | 1 | 116 | 5 | 111 (2.5) | 0 | | 3 | 91 (3.9) |
| | 2021 | 3 | 107 (6.2) | 3 | 110 (4.9) | 2 | 101 (1.0) | 0 | |
| | 2022 | 0 | | 3 | 108 | 2 | | 0 | |
| | 2023 | 0 | | 0 | | 7 | 96 (2.7) | 2 | 89 (2.2) |
| Bluegill Frame Net | 2019 | 37 | 105 (1.8) | 336 | 122 (0.7) | 68 | 122 (1.3) | 0 | |
| | 2020 | 22 | 113 (3.2) | 182 | 121 (0.6) | 161 | 120 (0.6) | 0 | |
| | 2021 | 14 | 122 (3.0) | 29 | 121 (1.0) | 11 | 117 (1.8) | 0 | |
| | 2022 | 18 | 123 (2.7) | 2 | 121 (2.9) | 4 | 122 (3.3) | 1 | 106 |
| | 2023 | 158 | 109 (0.8) | 15 | 113 (2.2) | 2 | 124 | 0 | |
| Northern Pike Gill Net | 2019 | 4 | 88 (1.7) | 25 | 84 (1.0) | 1 | 102 | 0 | |
| | 2020 | 15 | 92 (1.5) | 19 | 87 (1.0) | 1 | 94 | 1 | 85 |
| | 2021 | 14 | 84 (1.4) | 21 | 81 (1.1) | 0 | | 0 | |
| | 2022 | 1 | 80 | 3 | 83 (2.0) | 3 | 79 (3.2) | 0 | |
| | 2023 | 1 | 92 | 10 | 82 (1.9) | 1 | 79 | 1 | 84 |
| Smallmouth Bass Electro Fishing | 2019 | 10 | 95 (2.2) | 27 | 97 (1.0) | 21 | 95 (1.5) | 1 | 97 |
| | 2022 | 0 | | 1 | 81 | 22 | 95 (1.0) | 2 | 90 (6.3) |
| Walleye Gill Net | 2019 | 16 | 87 (1.2) | 35 | 88 (1.0) | 9 | 90 (1.2) | 2 | 93 (4.7) |
| | 2020 | 35 | 88 (0.8) | 27 | 91 (0.8) | 10 | 93 (2.0) | 2 | 88 (3.9) |

| | | Length Groups | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | S-Q | | Q-P | | P-M | | M | |
| Species | Year | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) | N | Wr (SE) |
| Walleye Gill Net | 2021 | 41 | 85 (0.6) | 16 | 86 (1.3) | 6 | 82 (2.2) | 1 | 75 |
| | 2022 | 19 | 98 (10.8) | 24 | 83 (0.6) | 3 | 86 (2.8) | 0 | |
| | 2023 | 4 | 88 (3.0) | 21 | 83 (1.0) | 4 | 79 (2.2) | 1 | 87 |
| White Bass Gill Net | 2019 | 0 | | 0 | | 1 | 92 | 20 | 88 (1.0) |
| | 2020 | 4 | 92 (0.9) | 8 | 91 (2.3) | 9 | 100 (1.6) | 44 | 92 (0.7) |
| | 2021 | 0 | | 2 | 87 (0.0) | 4 | 97 (0.6) | 17 | 93 (1.0) |
| | 2022 | 0 | | 0 | | 11 | 93 (1.2) | 36 | 88 (1.0) |
| | 2023 | 0 | | 0 | | 4 | 94 (1.7) | 28 | 85 (0.8) |
| White Sucker Gill Net | 2019 | 0 | | 0 | | 2 | 124 (2.2) | 17 | 104 (2.3) |
| | 2020 | 0 | | 0 | | 1 | 110 | 8 | 114 (1.8) |
| | 2021 | 0 | | 0 | | 1 | 112 | 17 | 105 (2.2) |
| | 2022 | 0 | | 0 | | 0 | | 11 | 113 (6.5) |
| | 2023 | 0 | | 0 | | 0 | | 9 | 101 (2.3) |
| Yellow Perch Gill Net | 2019 | 132 | 106 (2.2) | 54 | 98 (0.9) | 6 | 91 (2.1) | 1 | 95 |
| | 2020 | 206 | 105 (0.5) | 54 | 100 (0.9) | 2 | 92 (3.0) | 0 | |
| | 2021 | 37 | 100 (1.2) | 16 | 94 (2.0) | 2 | 85 (5.4) | 0 | |
| | 2022 | 3 | 99 (3.7) | 0 | | 0 | | 0 | |
| | 2023 | 16 | 93 (2.1) | 0 | | 0 | | 0 | |

## Length Frequency Distribution

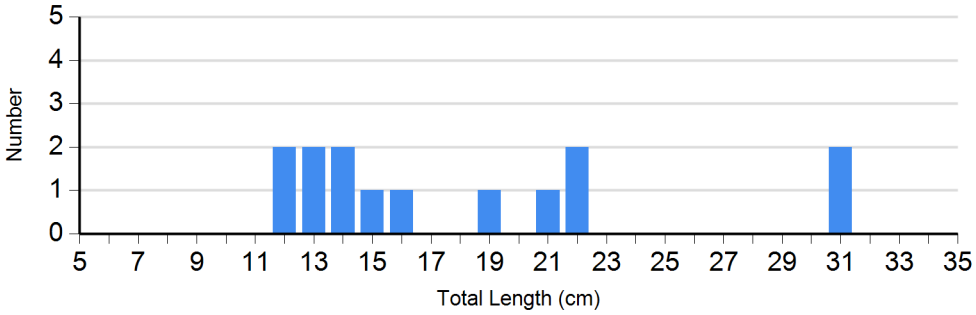
Length frequency histogram of species sampled by year.

Species: Black Bullhead
Gear: AFS std gill net



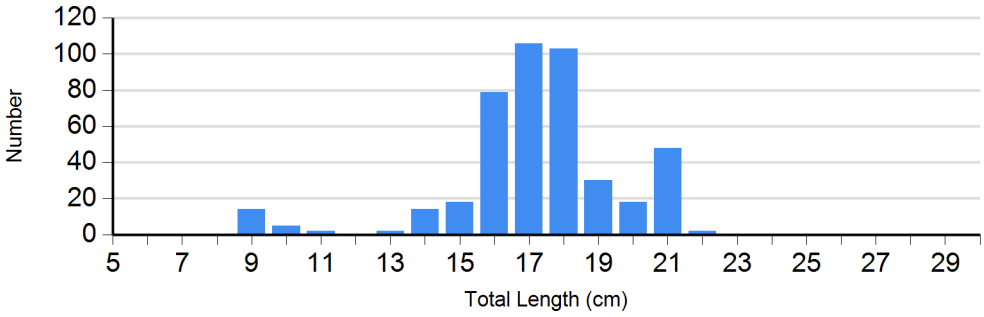

2021

Species: Black Crappie
Gear: frame net (std 3/4 in)

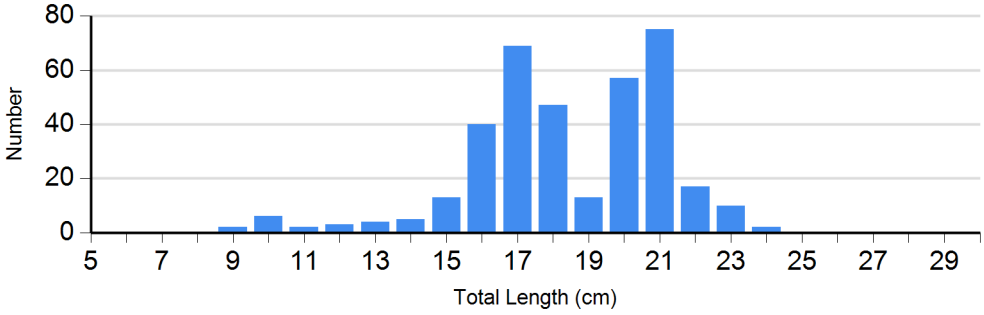



2019

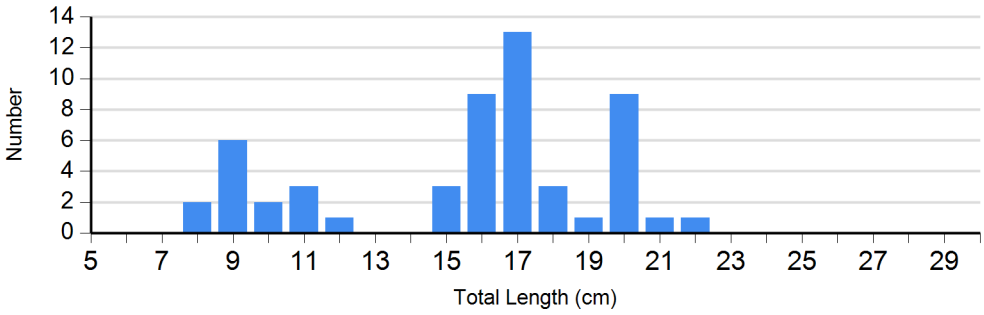
Species: Bluegill
Gear: frame net (std 3/4 in)



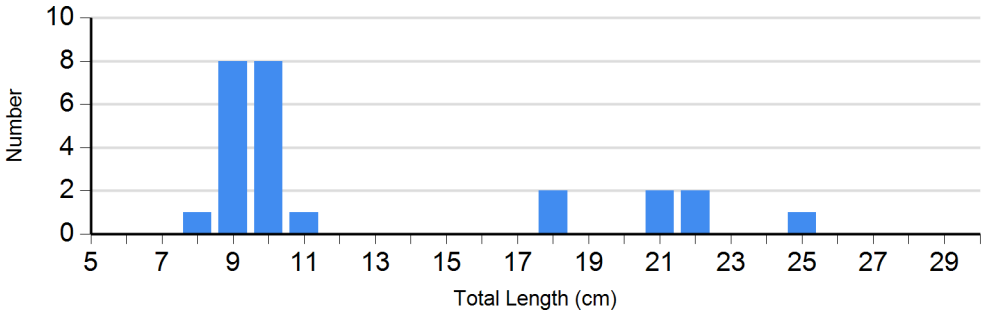

2019



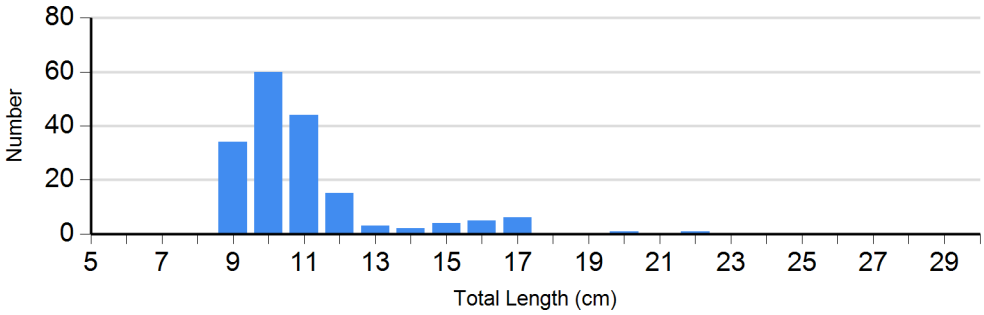

2020




2021

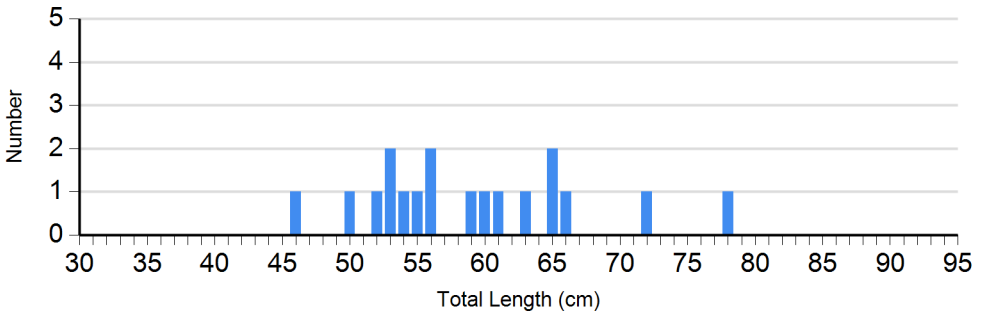



2022

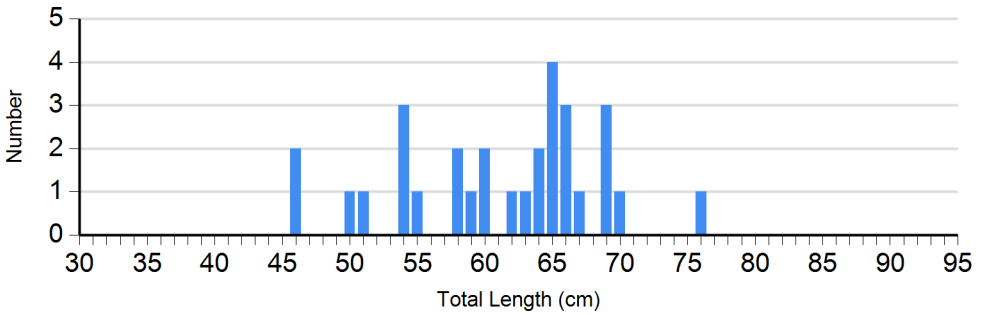



2023

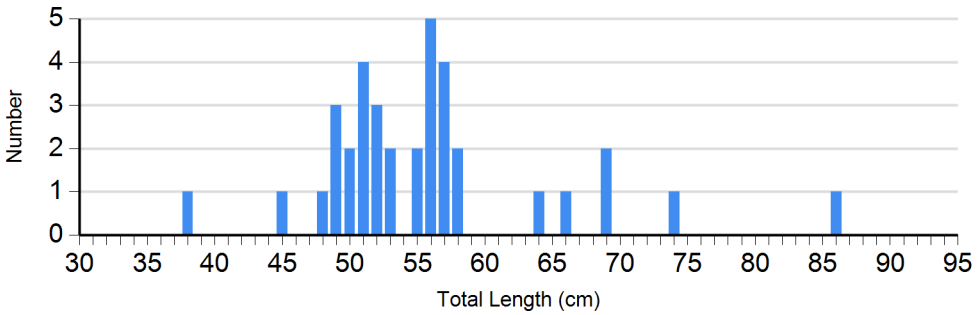
Species: Northern Pike
Gear: AFS std gill net



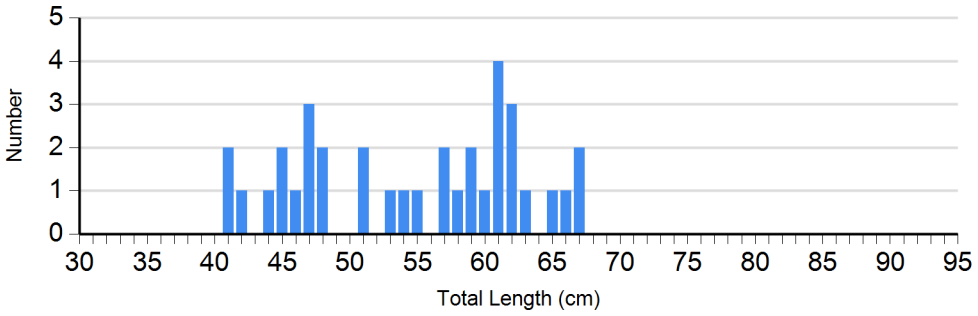

2018



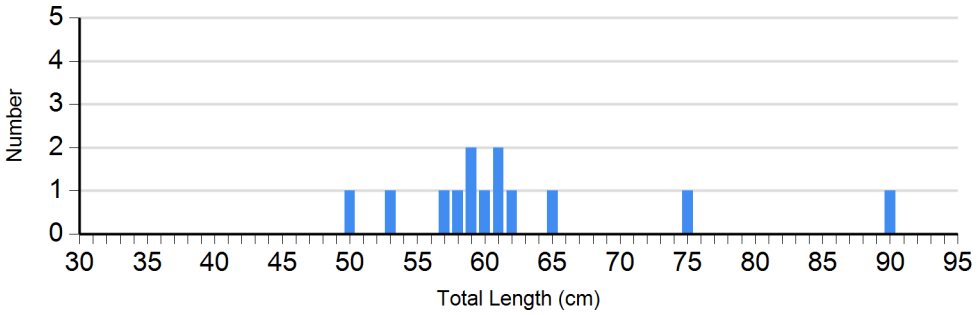

2019




2020

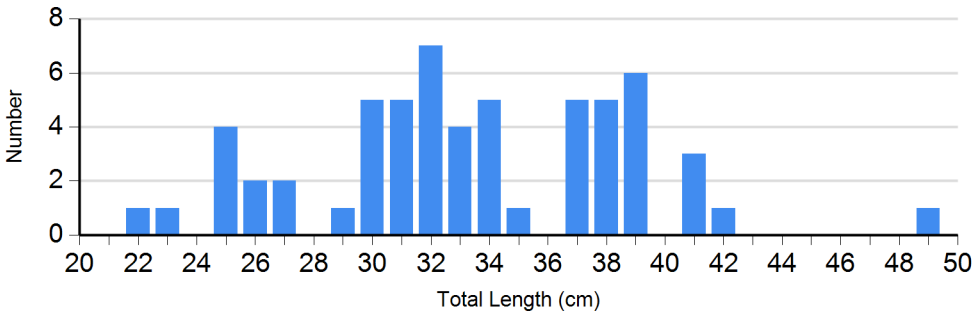



2021



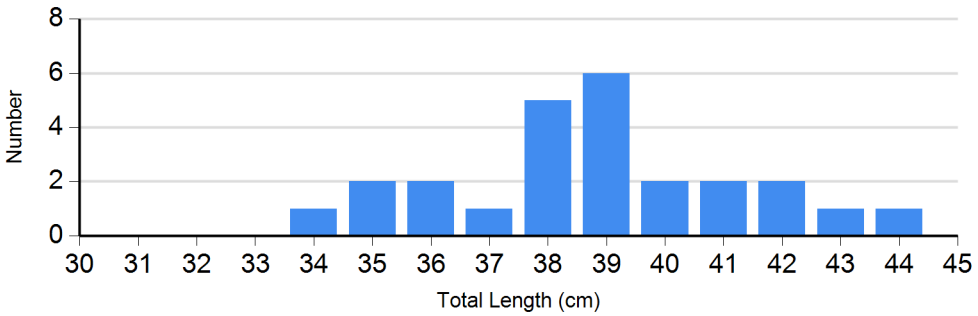

2023

Species: Smallmouth Bass
Gear: boat shocker (day)




2019

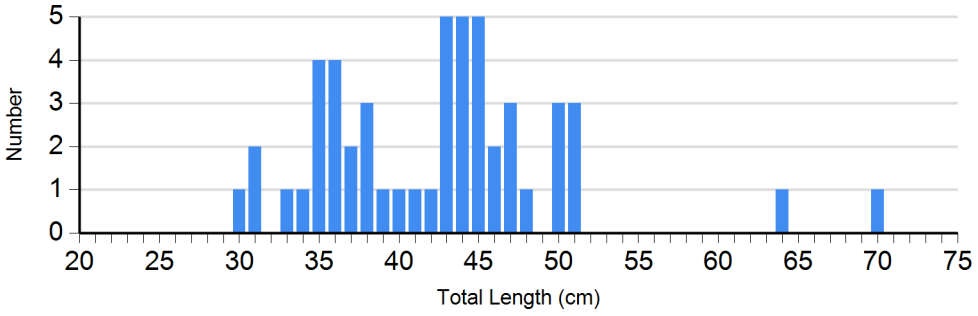
Species: Smallmouth Bass
Gear: spring day EF



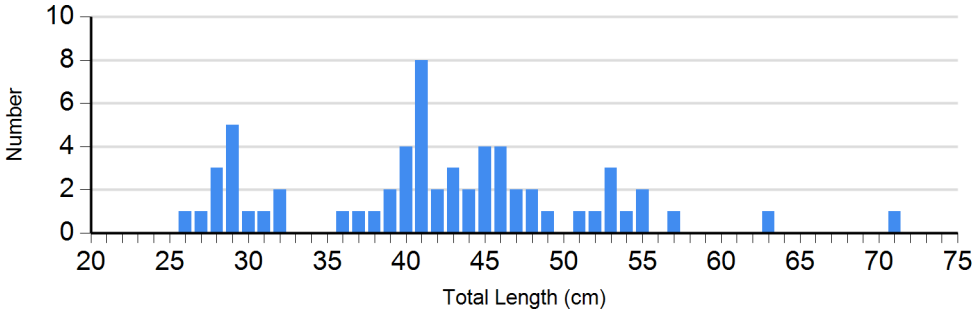

2022

Species: Walleye
Gear: AFS std gill net

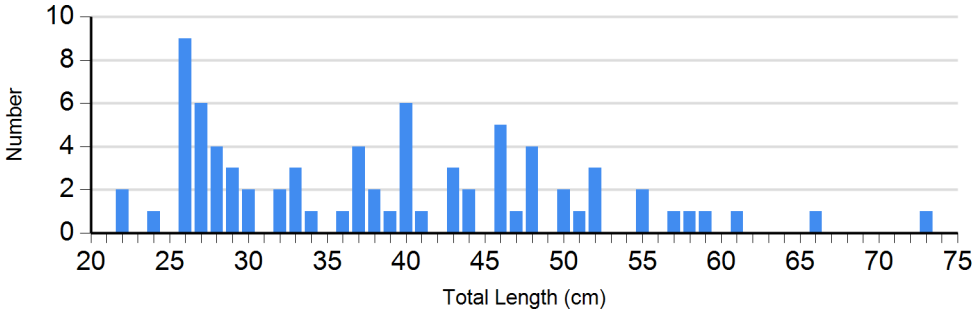
2018



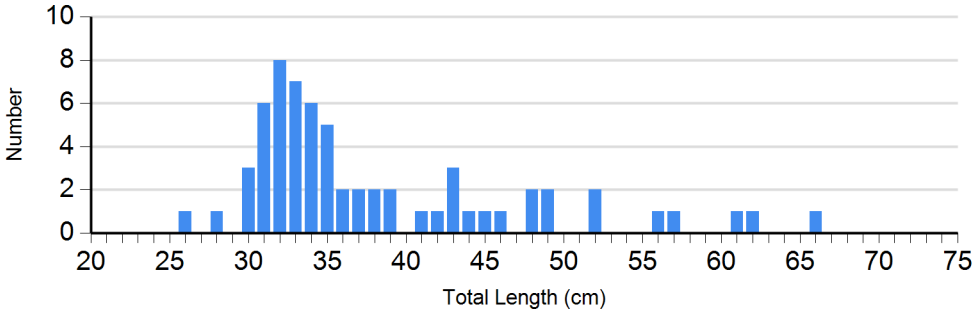

2019



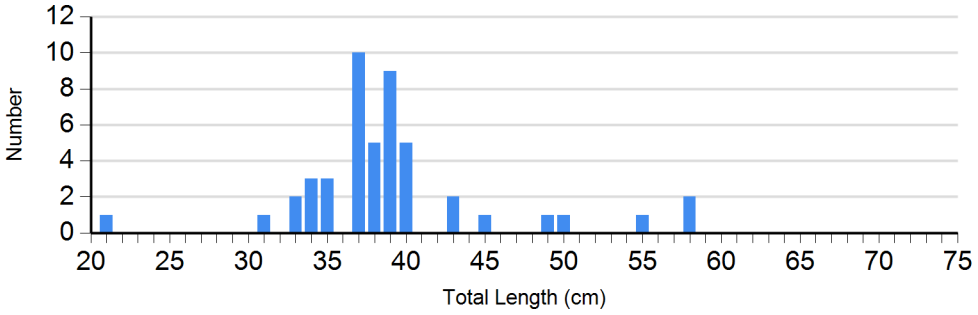

2020

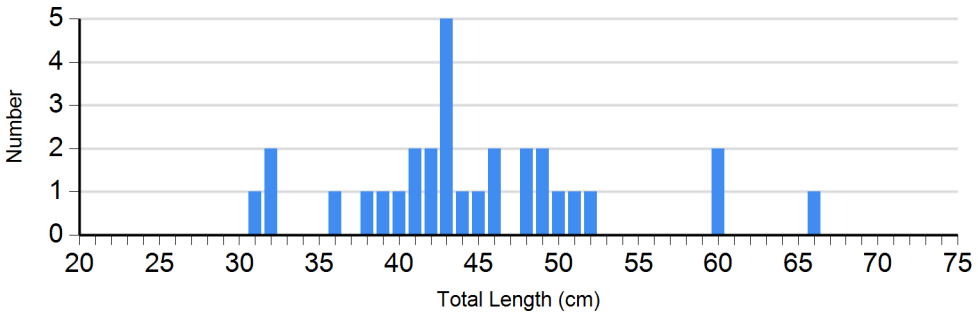



2021



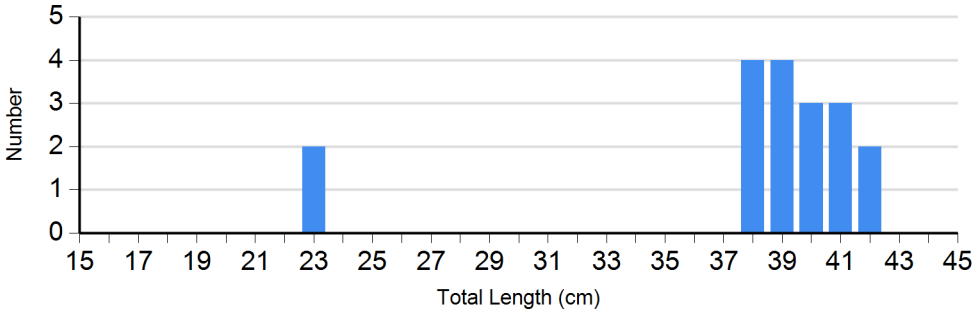

2022



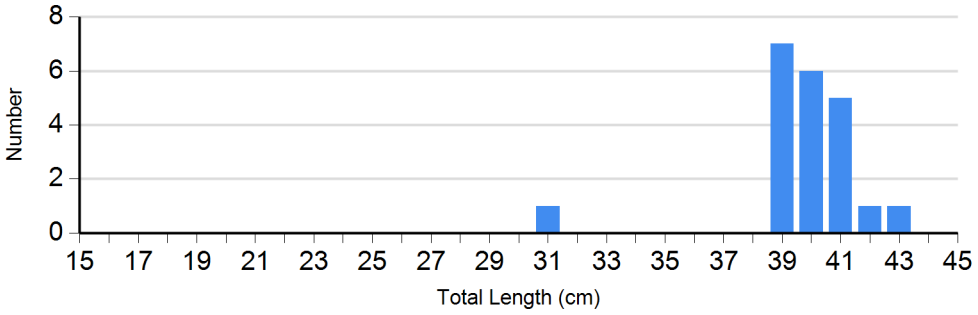



2023

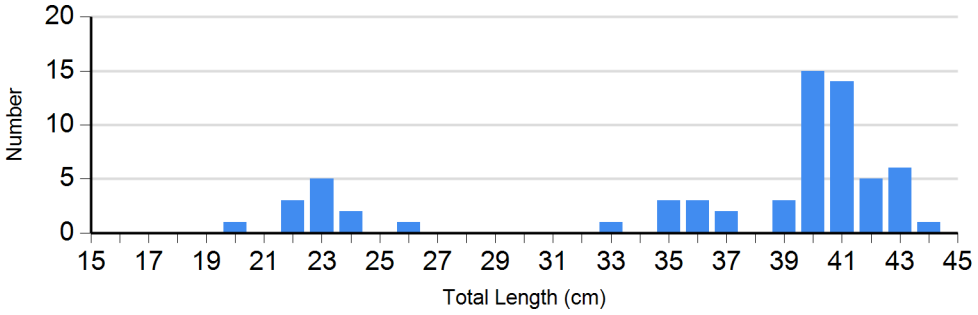
Species: White Bass
Gear: AFS std gill net



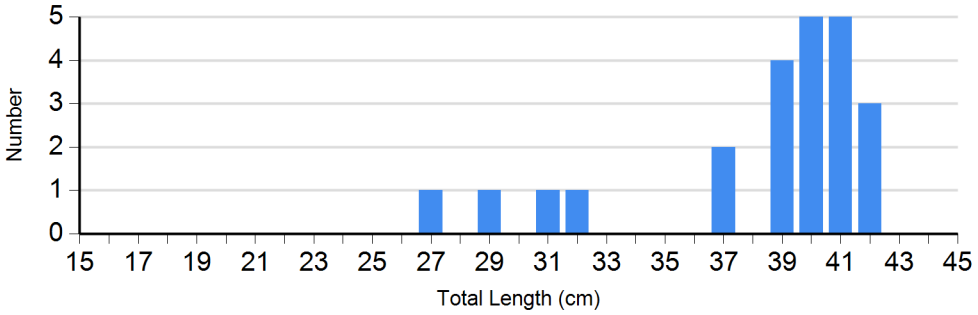

2018



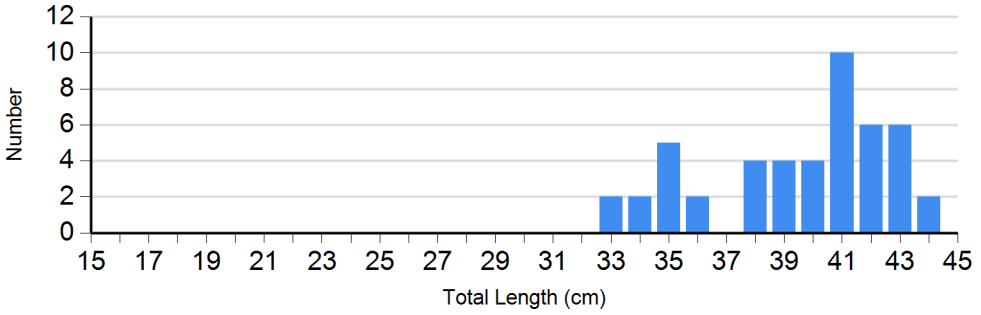

2019



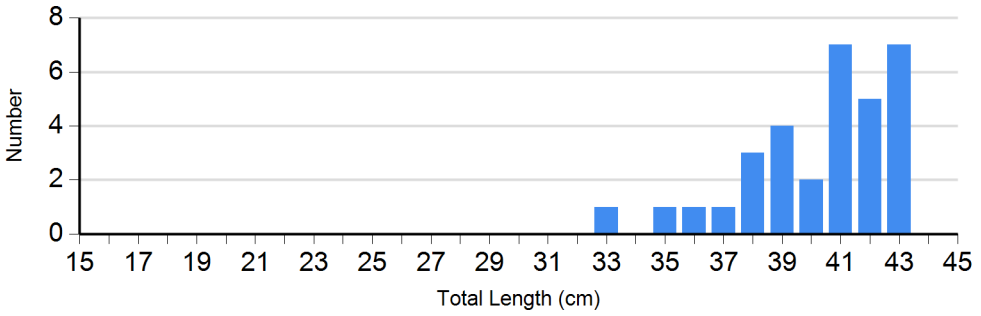

2020




2021

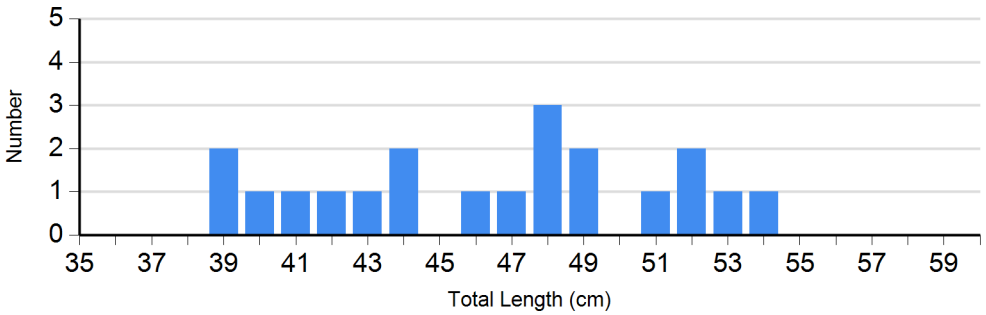



2022

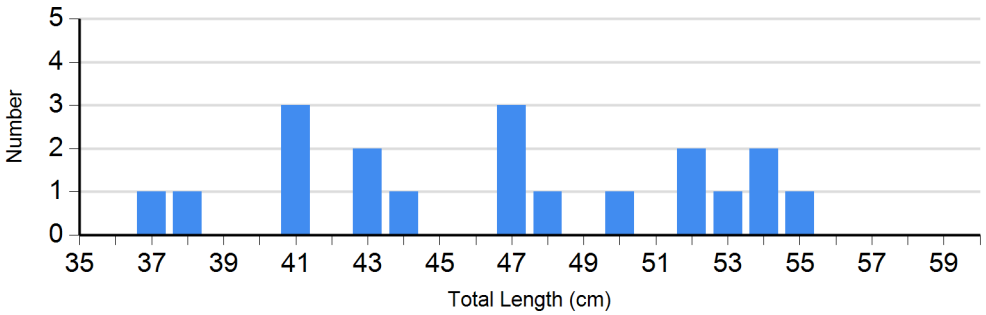



2023

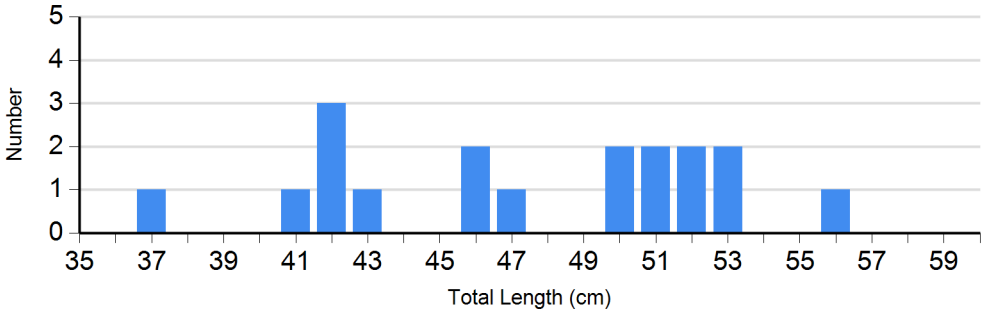
Species: White Sucker
Gear: AFS std gill net



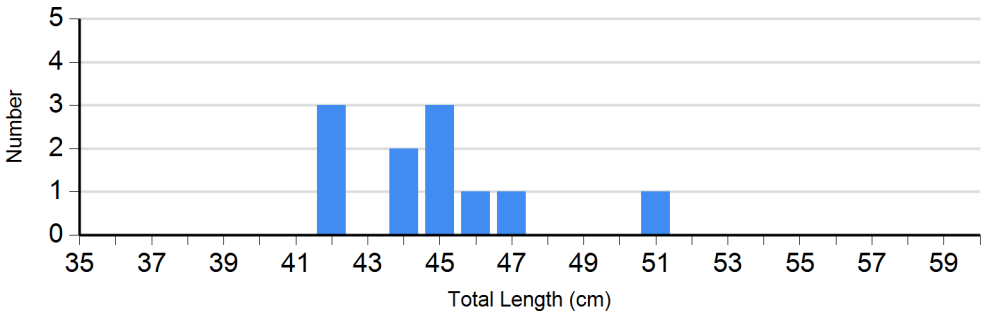

2018




2019

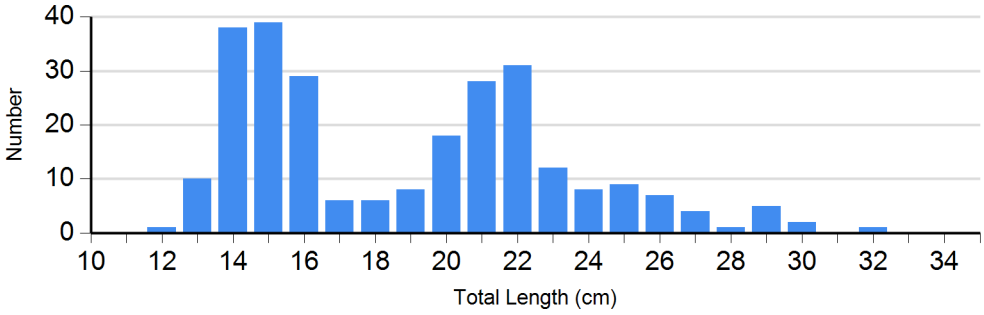



2021

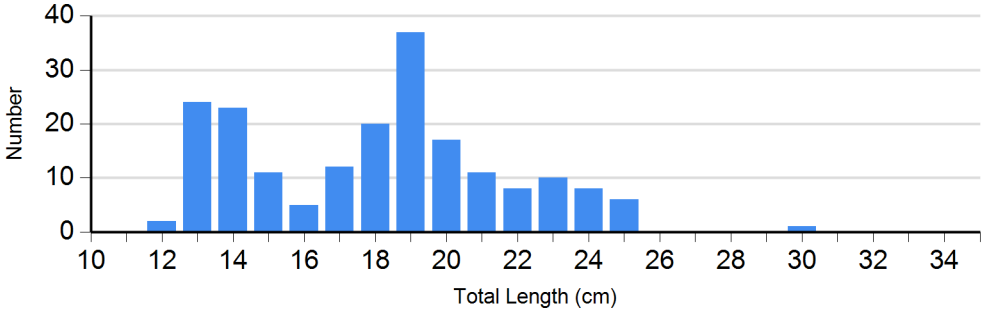



2022

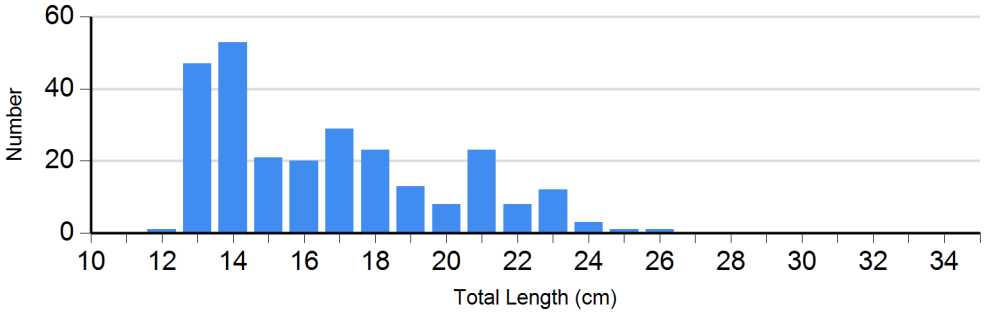
Species: Yellow Perch
Gear: AFS std gill net



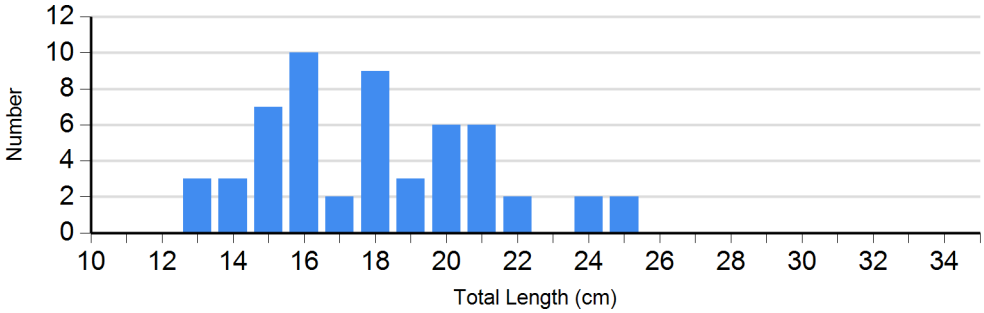

2018



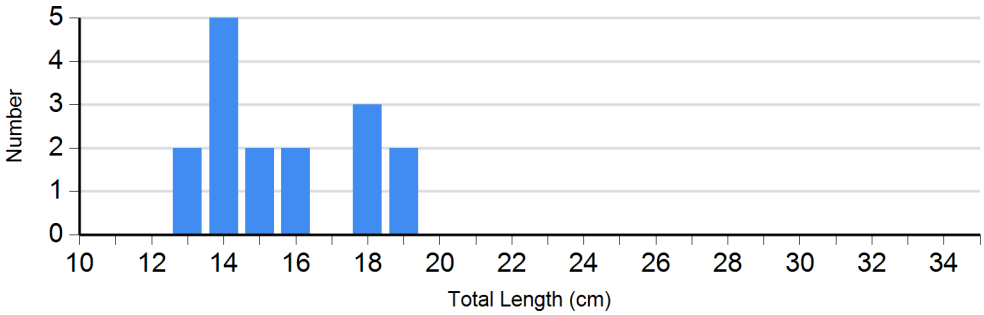

2019




2020




2021

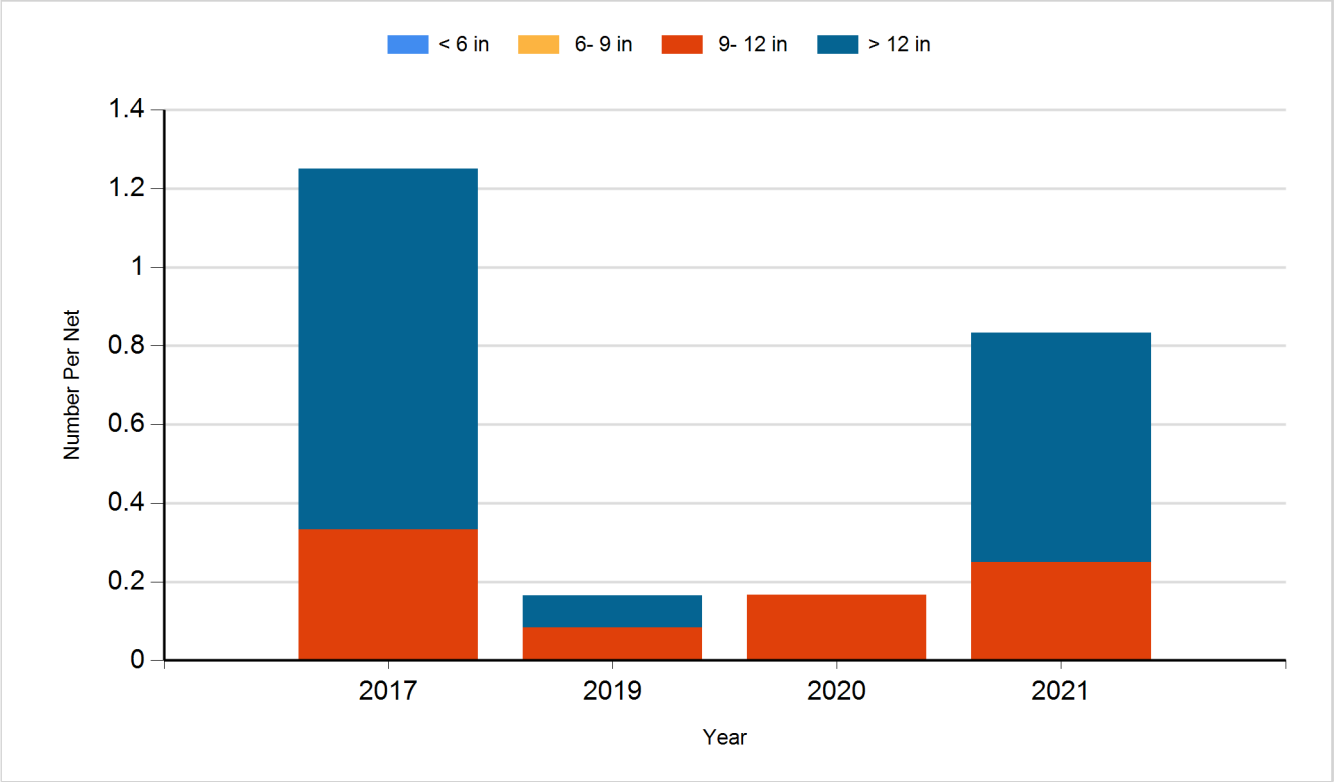

5
4
3
2
1
0
Number
10
12
14
16
18
20
22
24
26
28
30
32
34
Total Length (cm)

2023

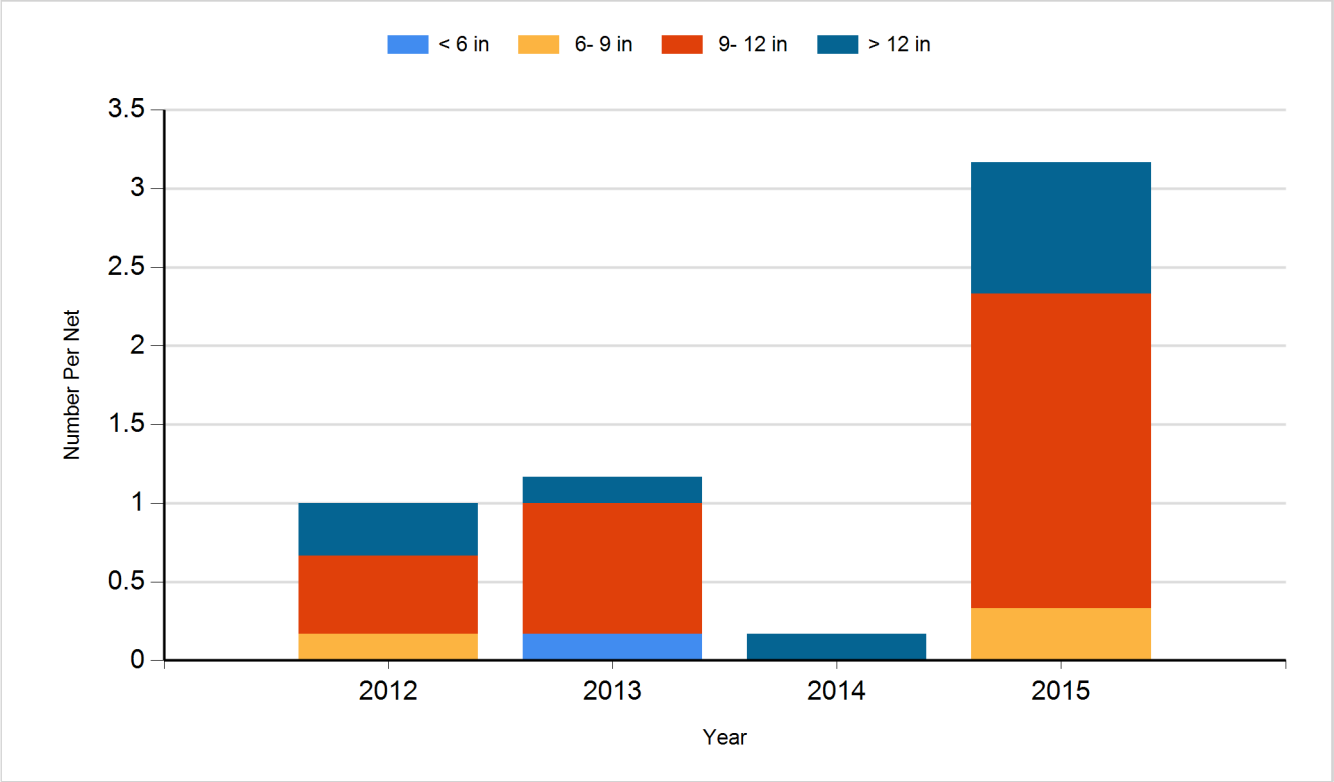
## Historic Fish Sizes and Relative Abundance

Size distribution per net by color for species sampled by year.

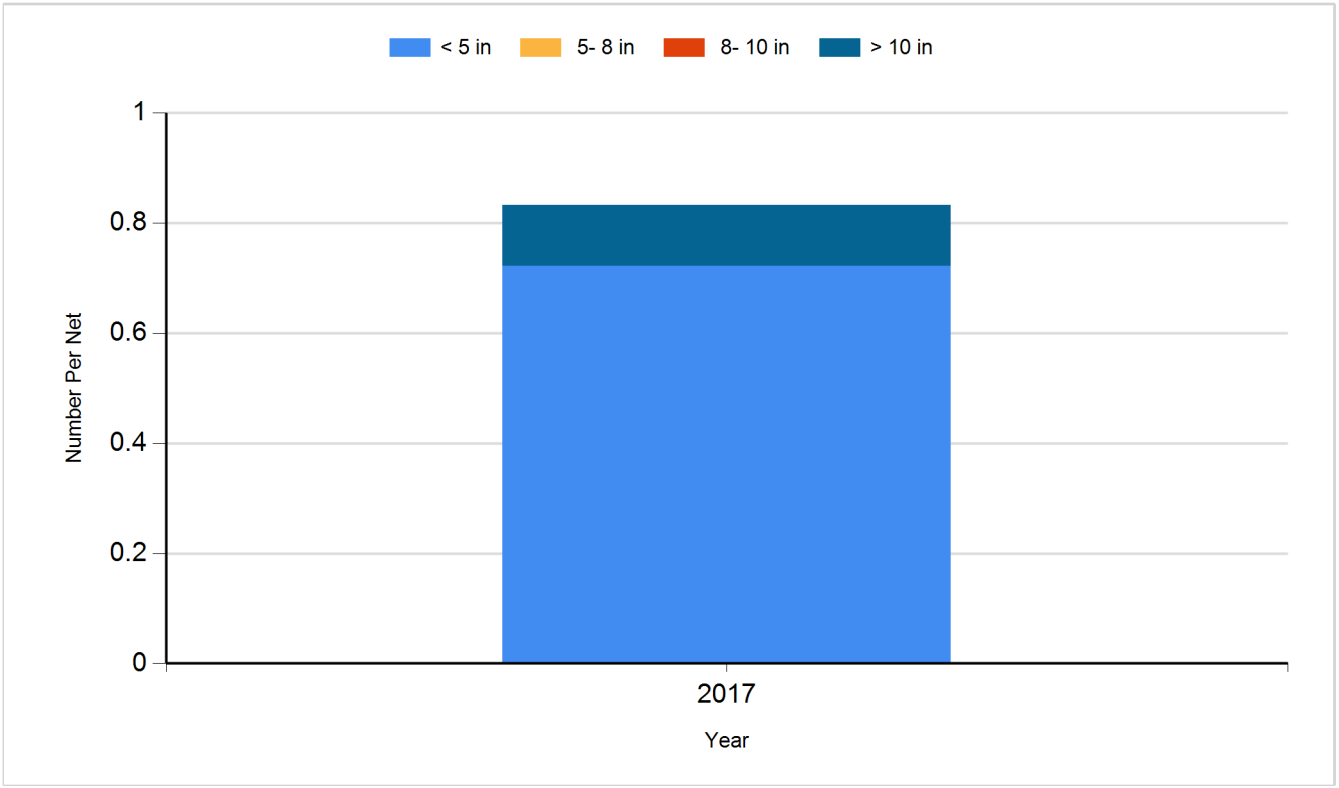
Species: Black Bullhead
Gear: AFS std gill net



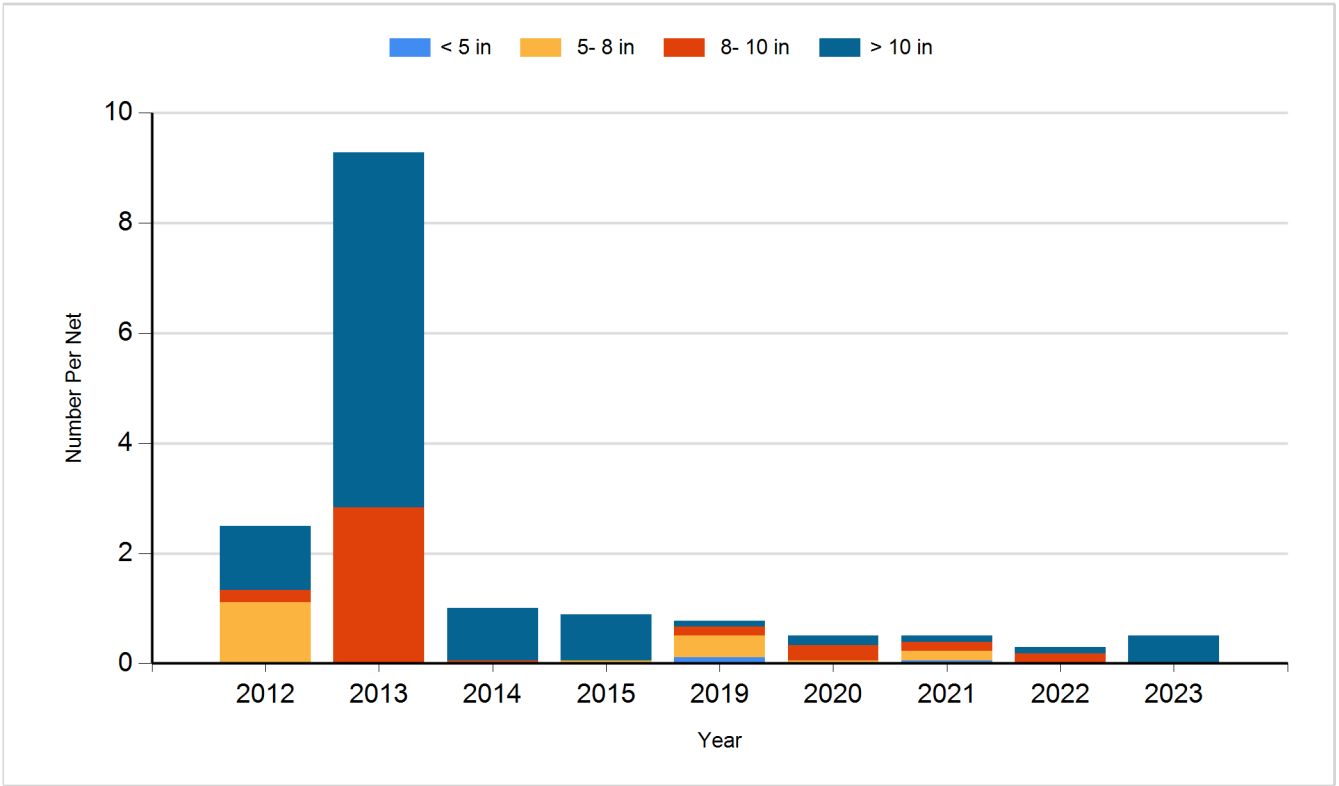

Species: Black Bullhead
Gear: std exp gill net



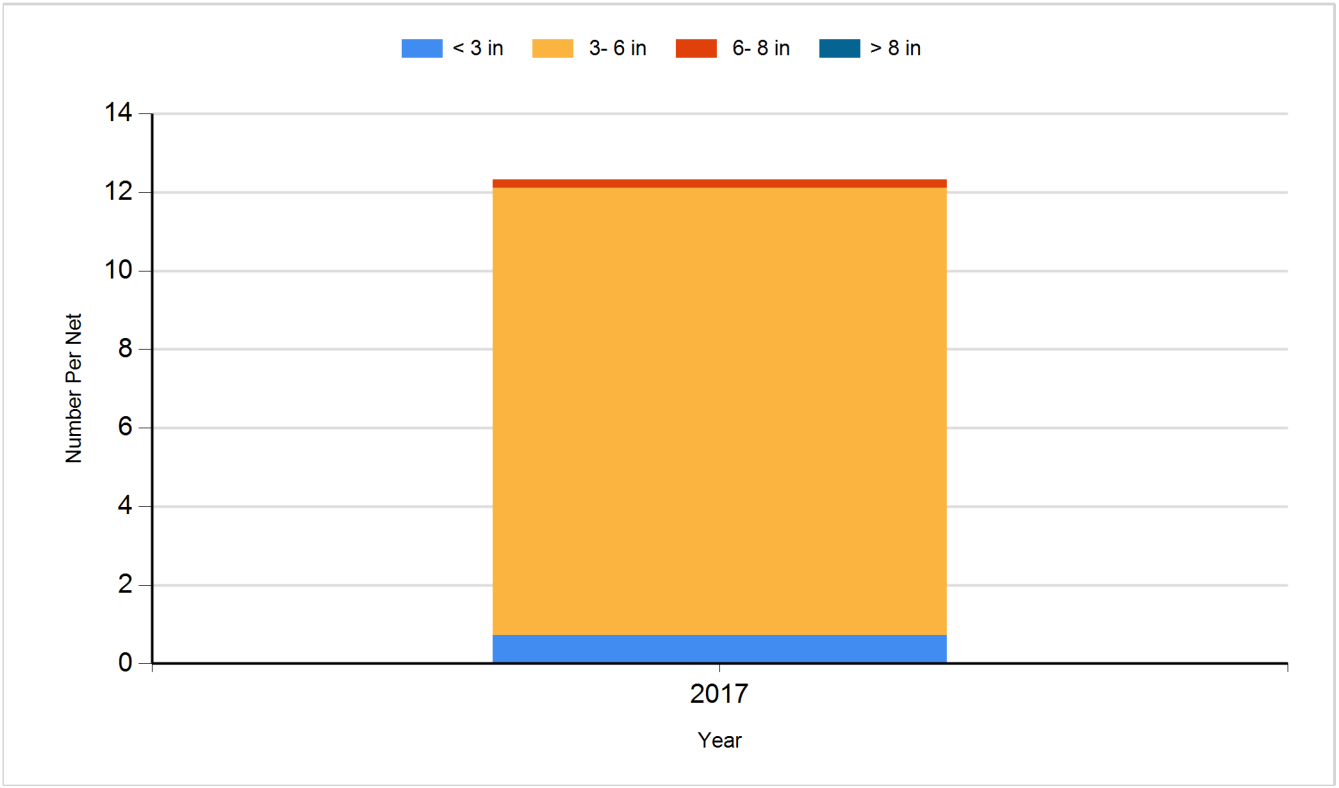
Species: Black Crappie
Gear: AFS std frame net



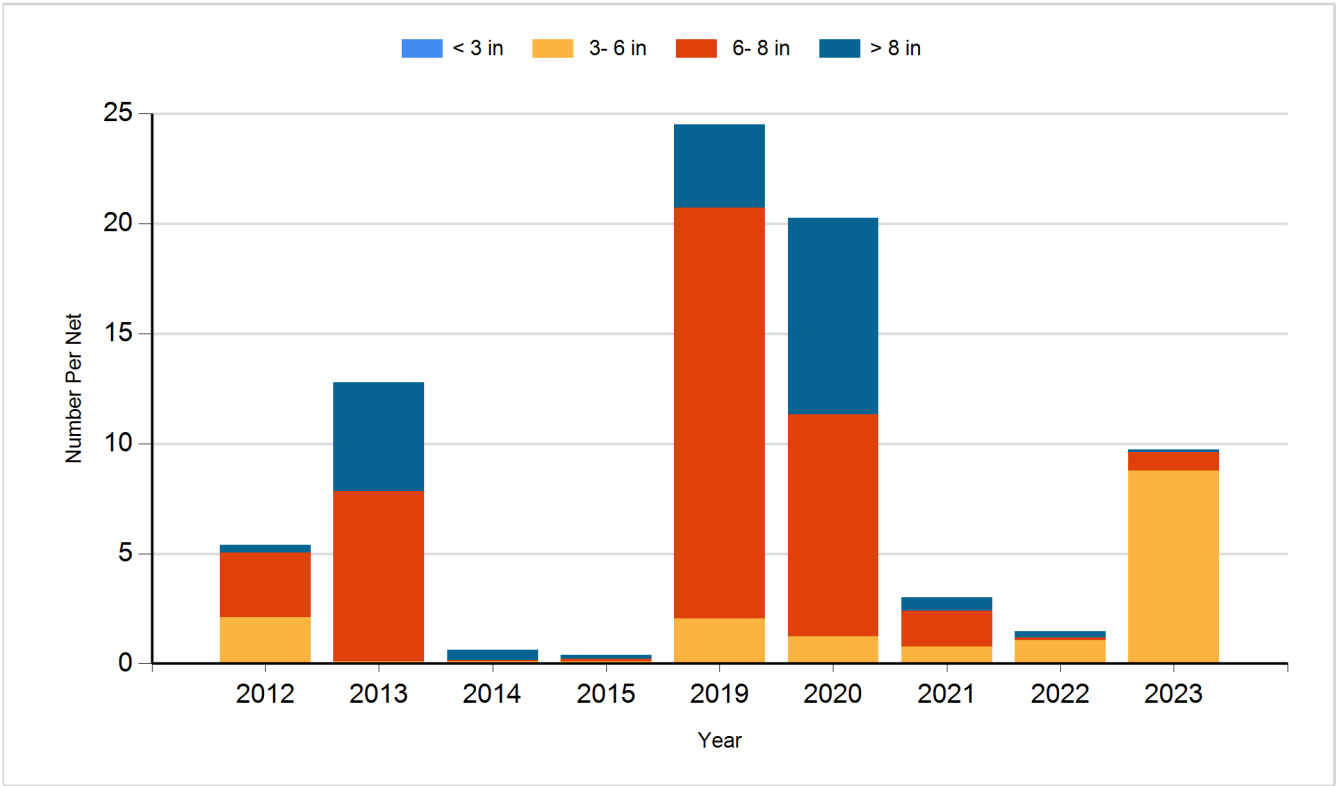

Species: Black Crappie
Gear: frame net (std 3/4 in)



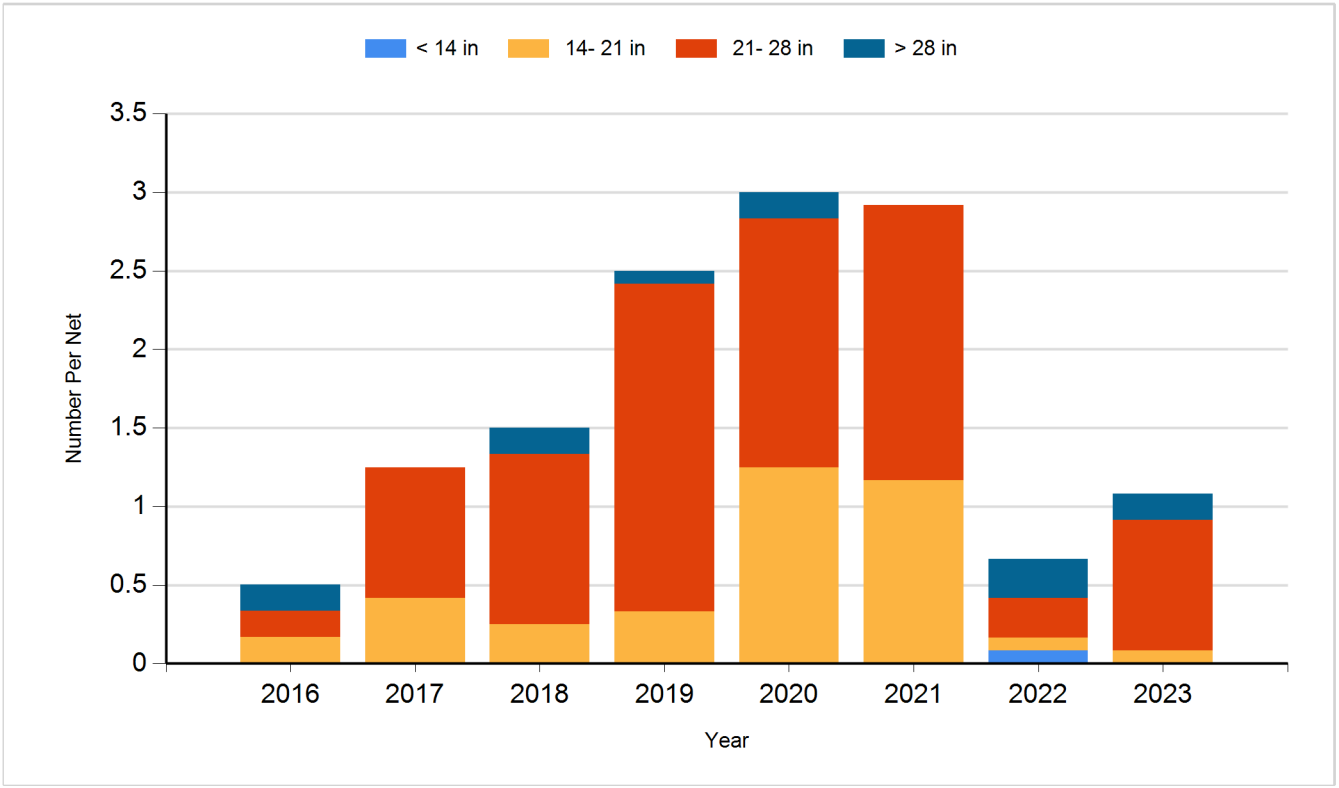
Species: Bluegill
Gear: AFS std frame net



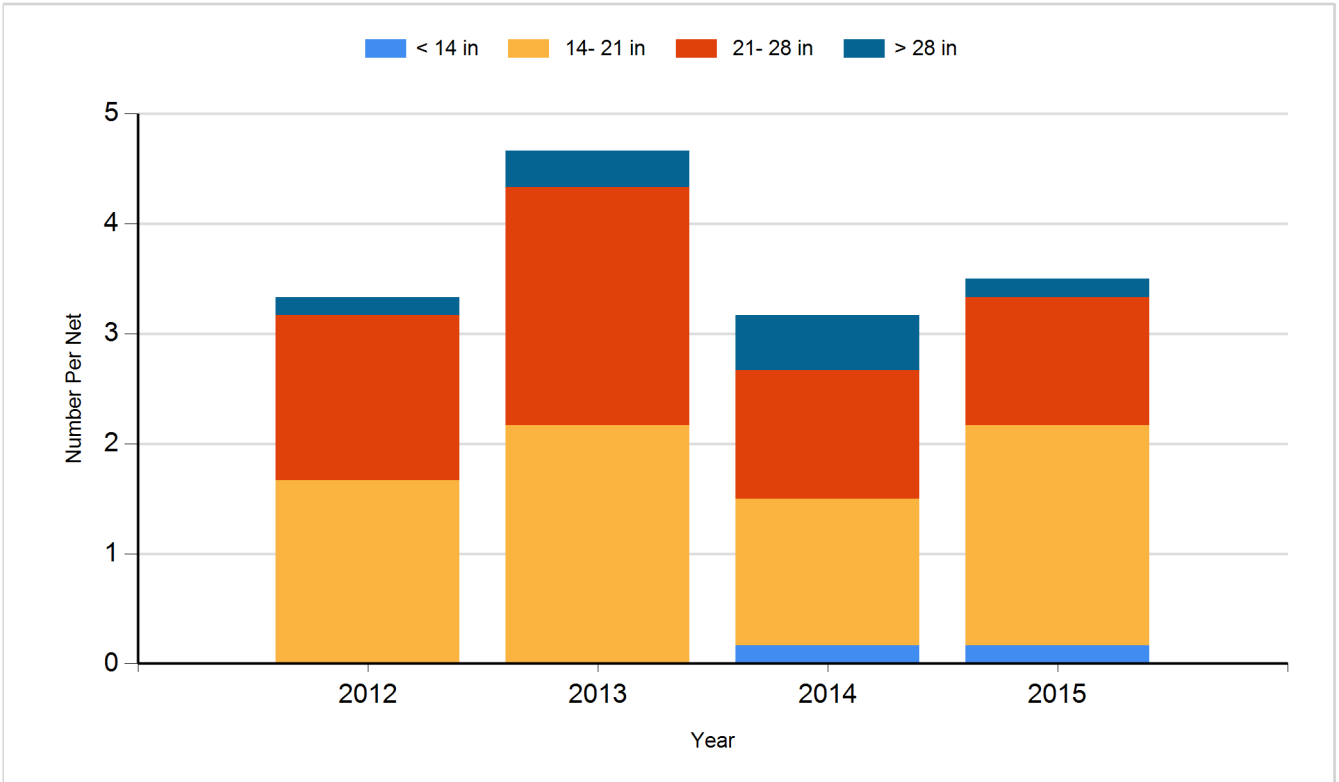

Species: Bluegill
Gear: frame net (std 3/4 in)



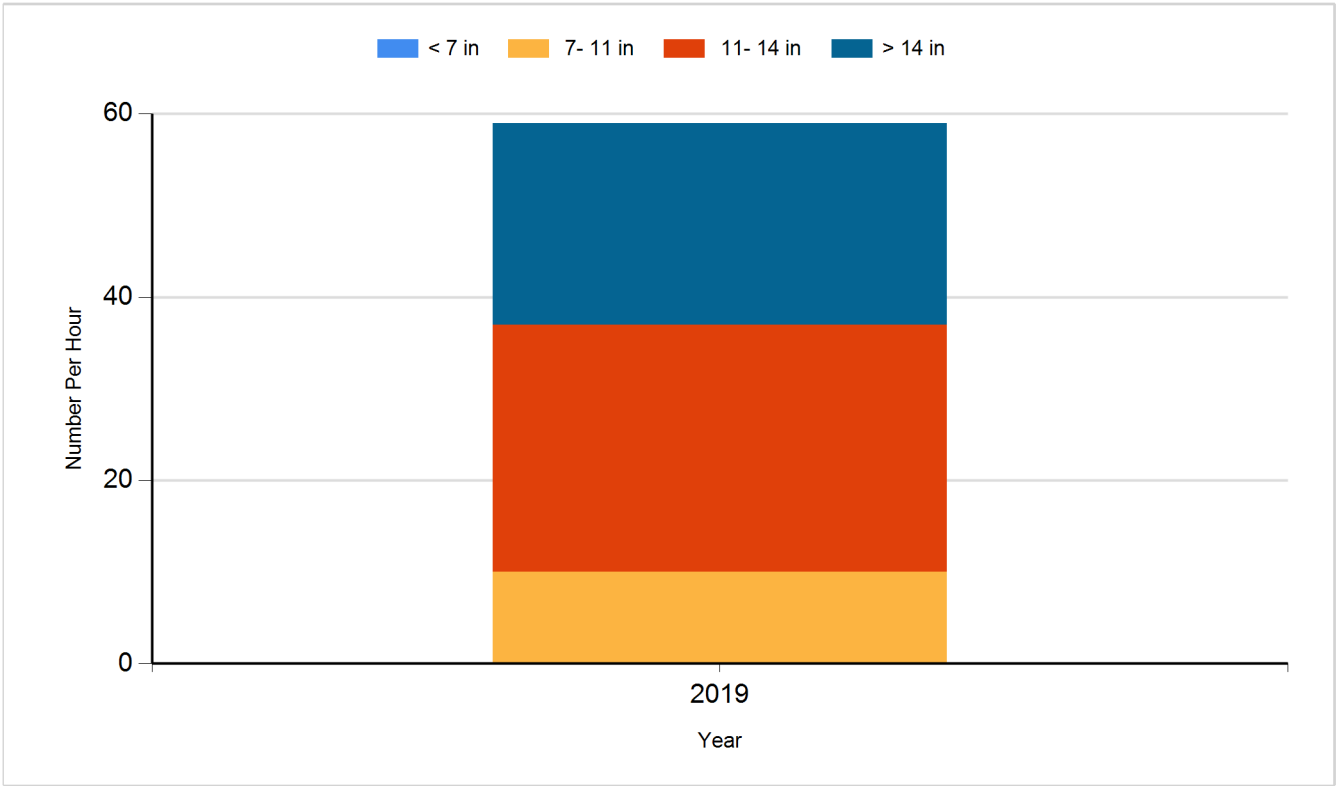
Species: Northern Pike
Gear: AFS std gill net



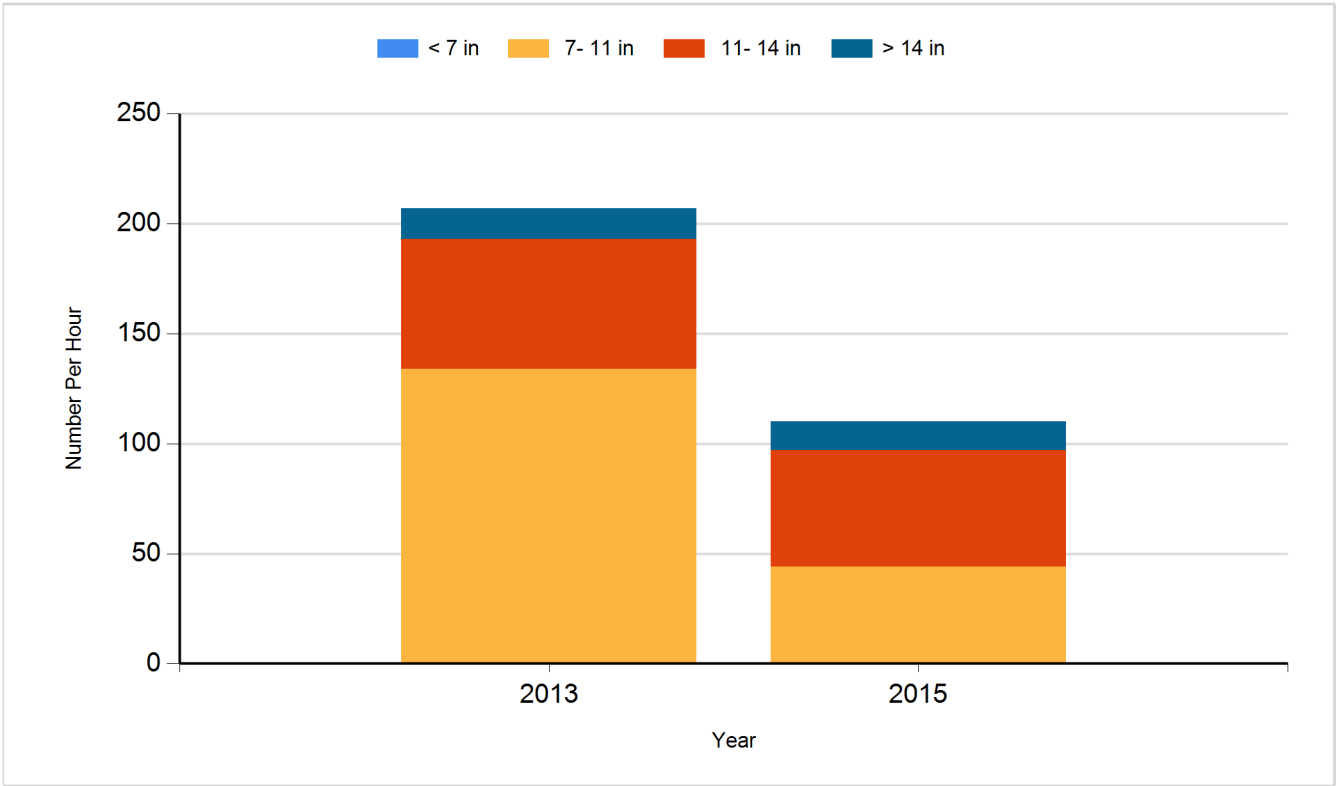

Species: Northern Pike
Gear: std exp gill net



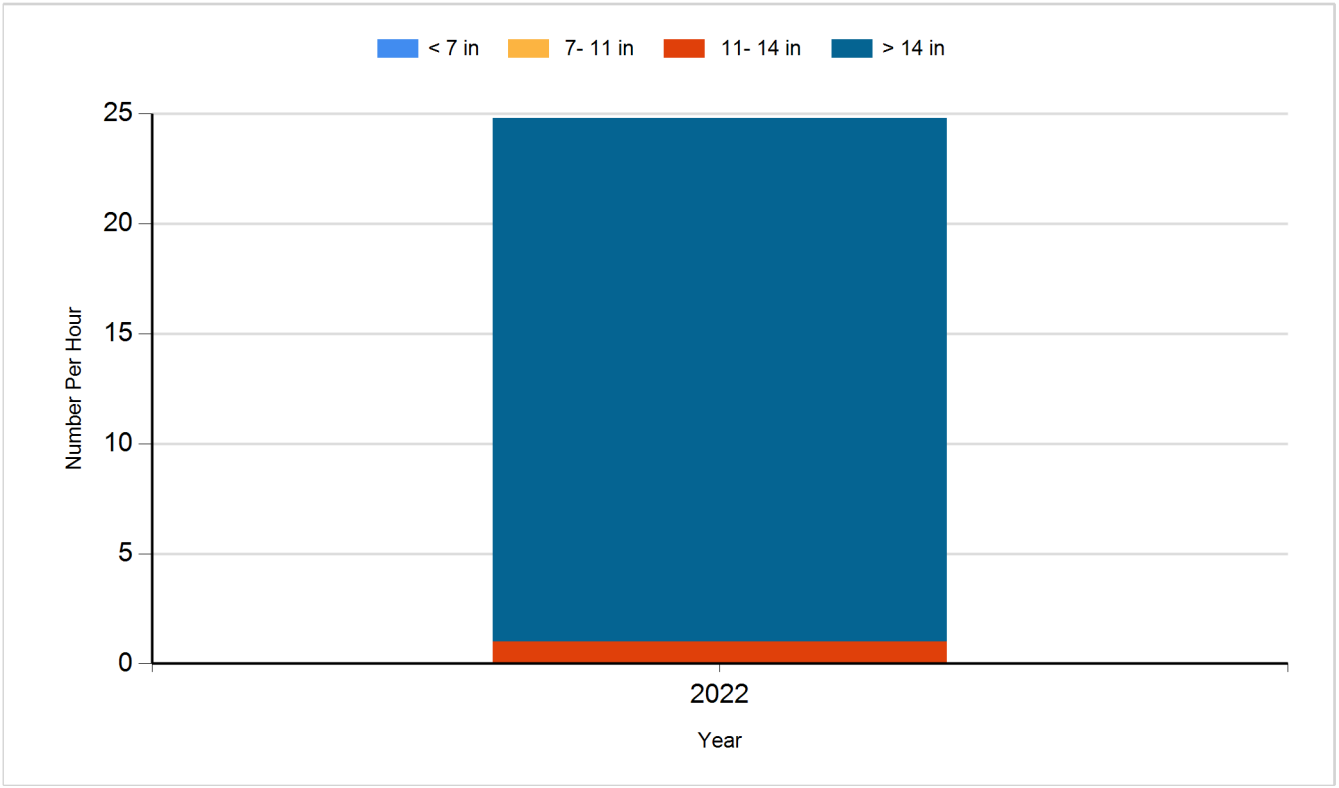
Species: Smallmouth Bass
Gear: boat shocker (day)



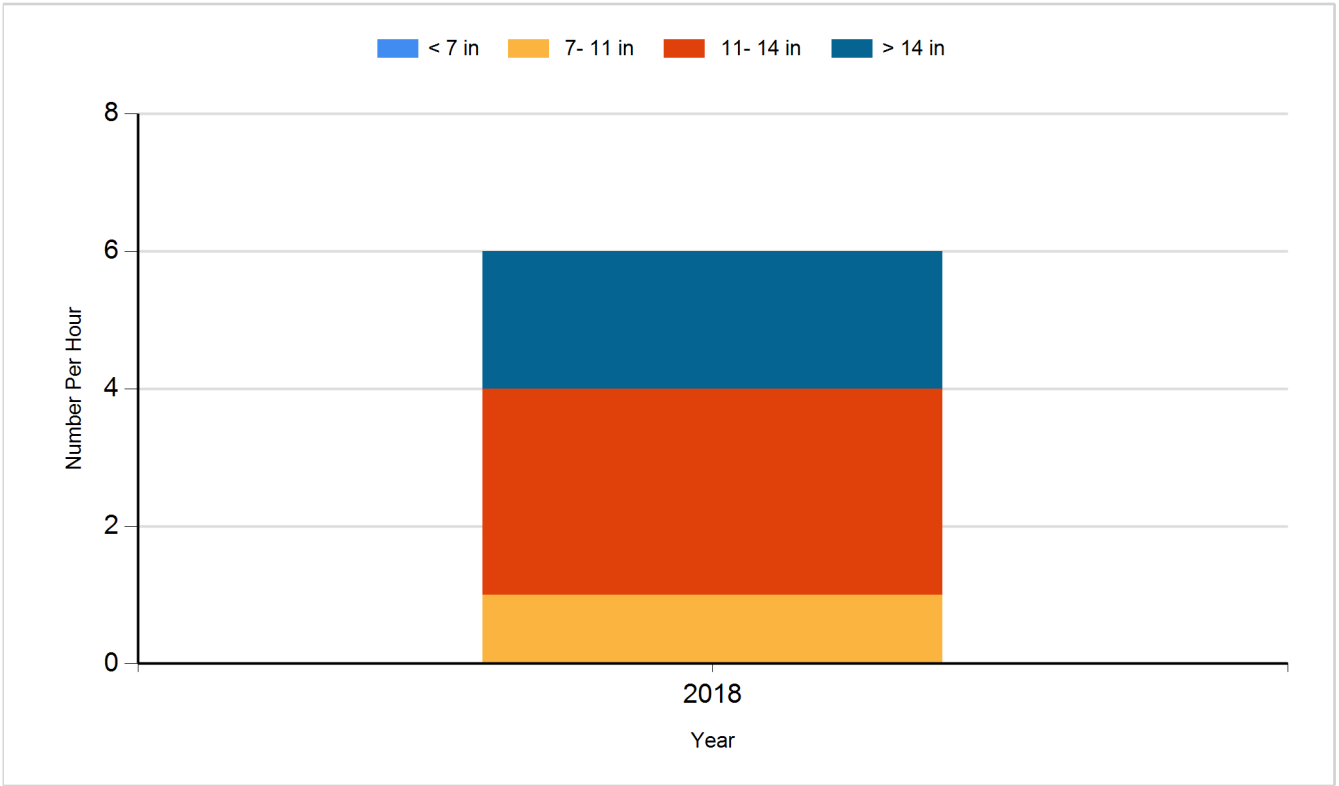

Species: Smallmouth Bass
Gear: boat shocker (night, DC)



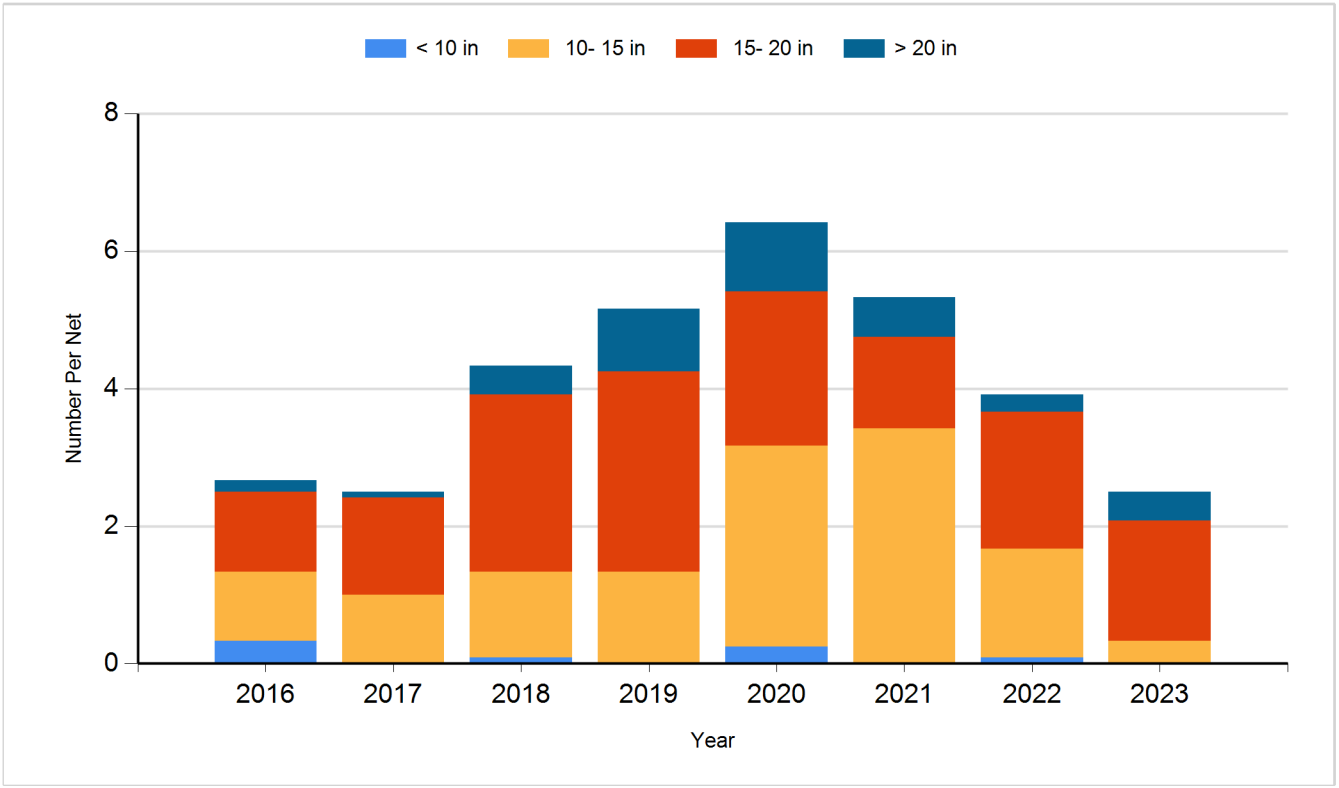
Species: Smallmouth Bass
Gear: spring day EF



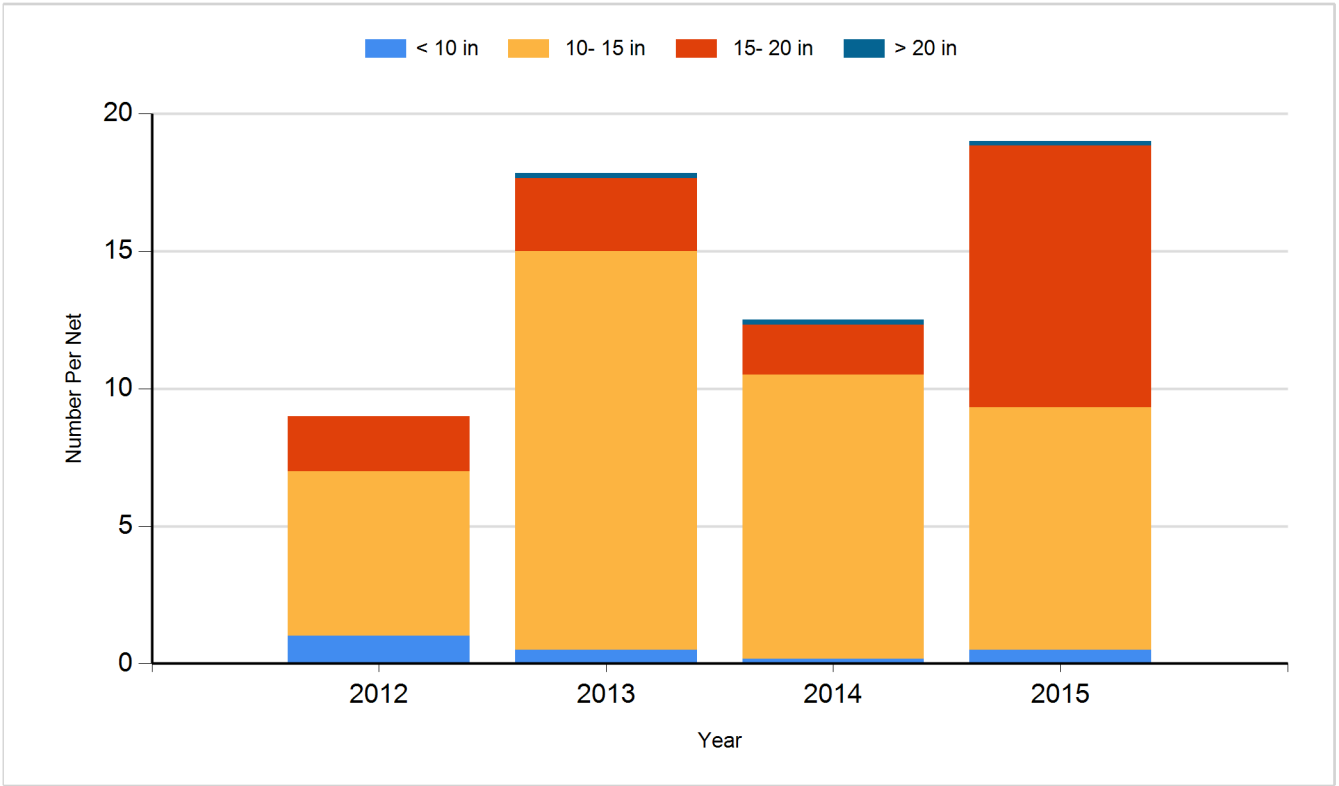

Species: Smallmouth Bass
Gear: spring night EF-SMB



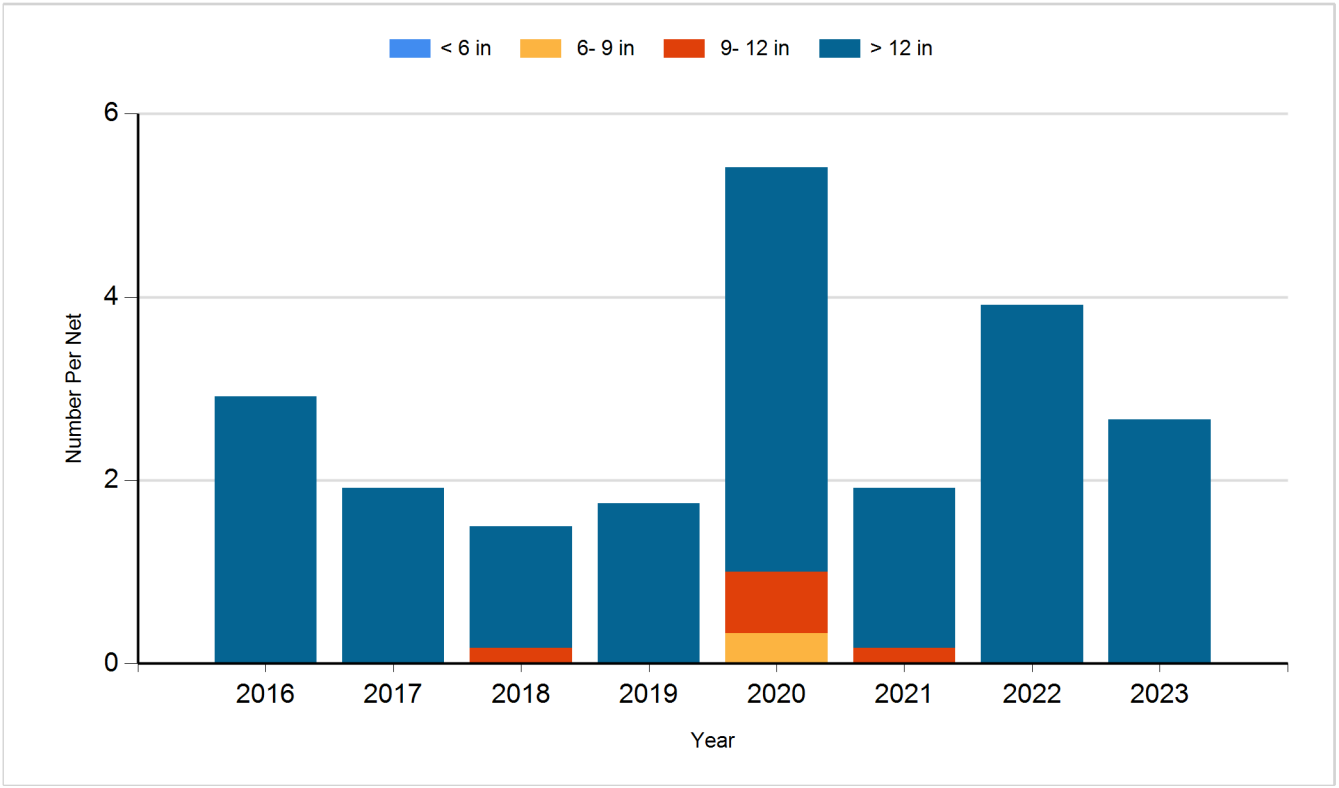
Species: Walleye
Gear: AFS std gill net



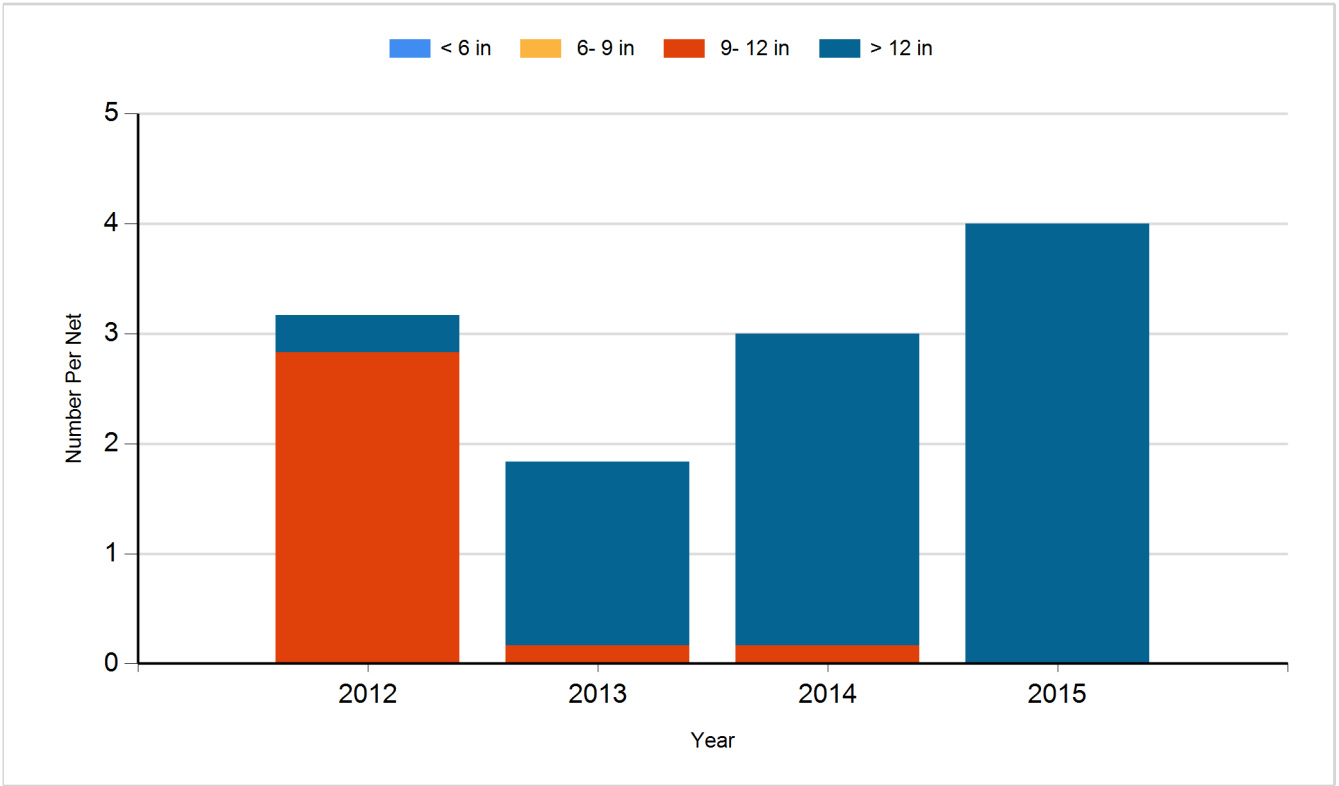

Species: Walleye
Gear: std exp gill net



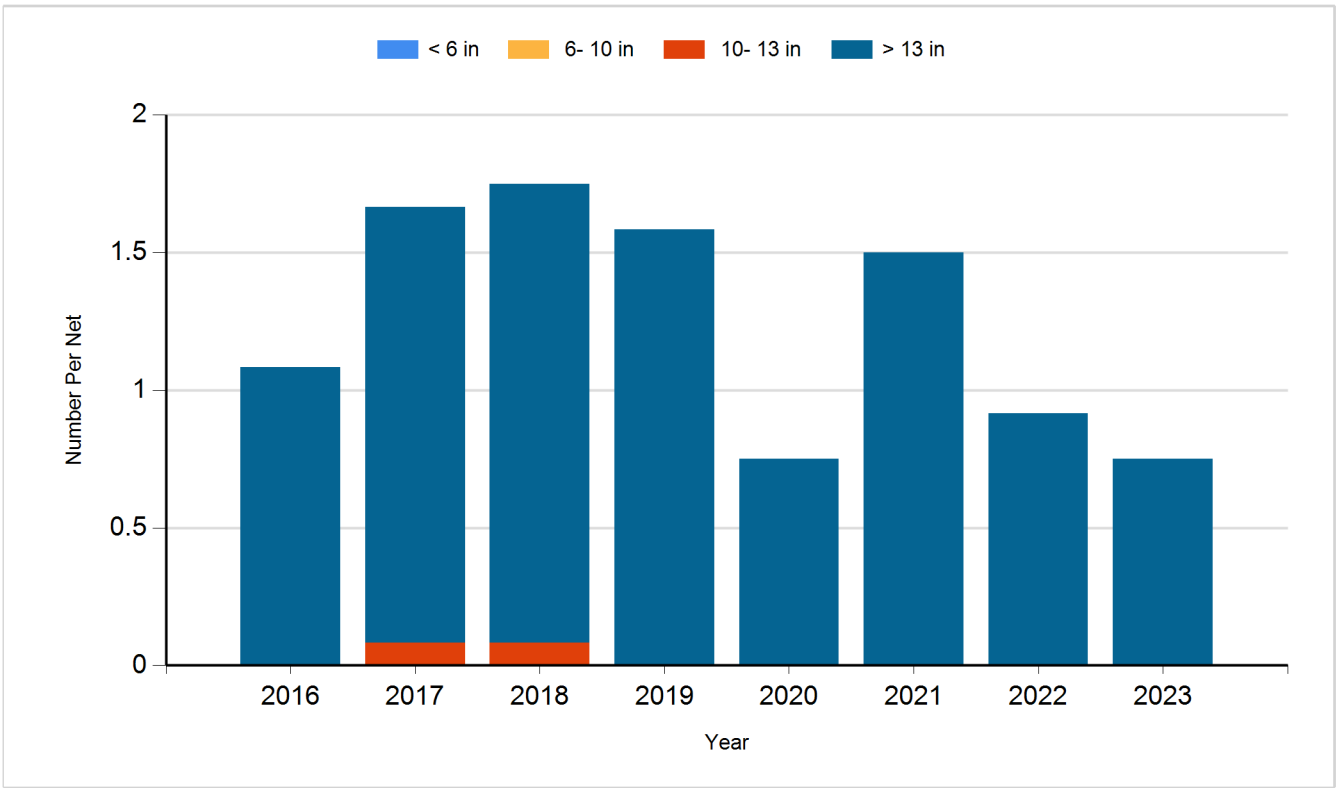
Species: White Bass
Gear: AFS std gill net



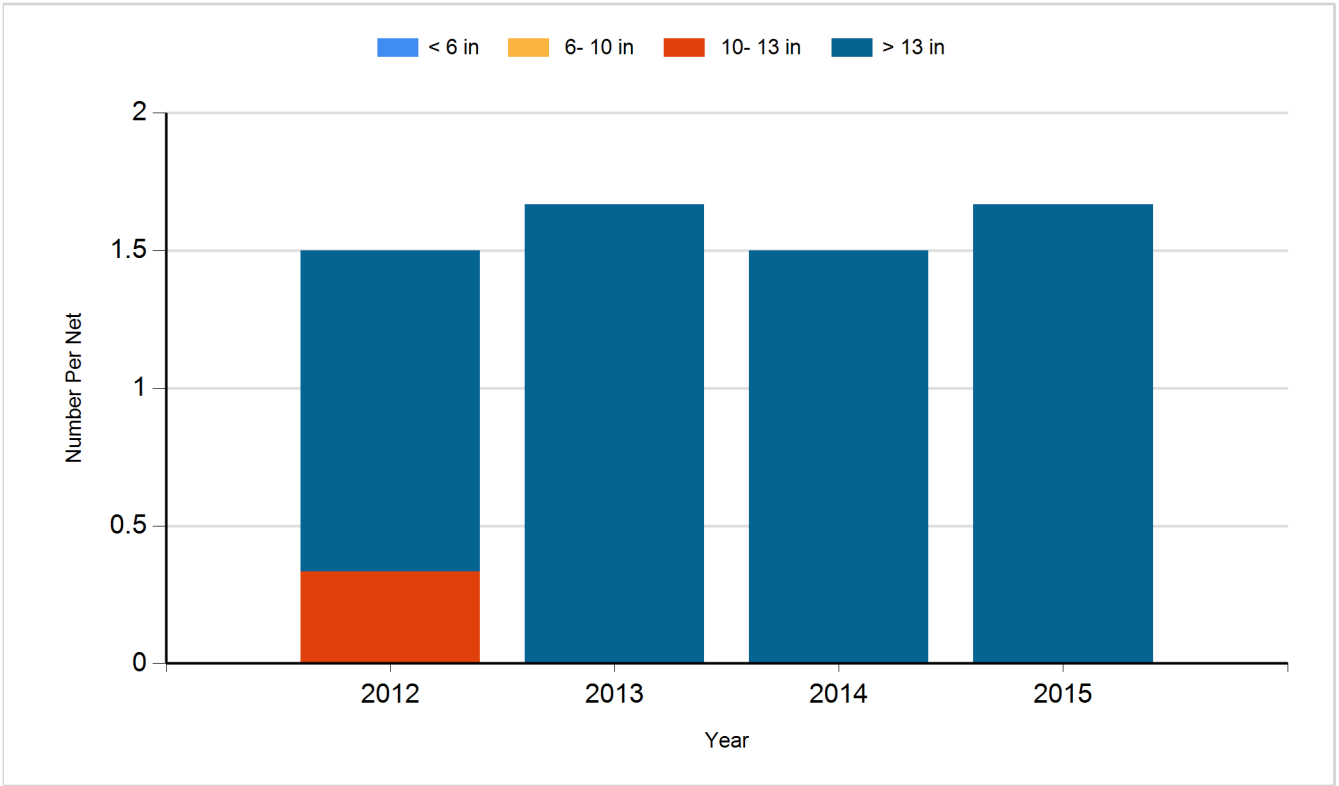

Species: White Bass
Gear: std exp gill net



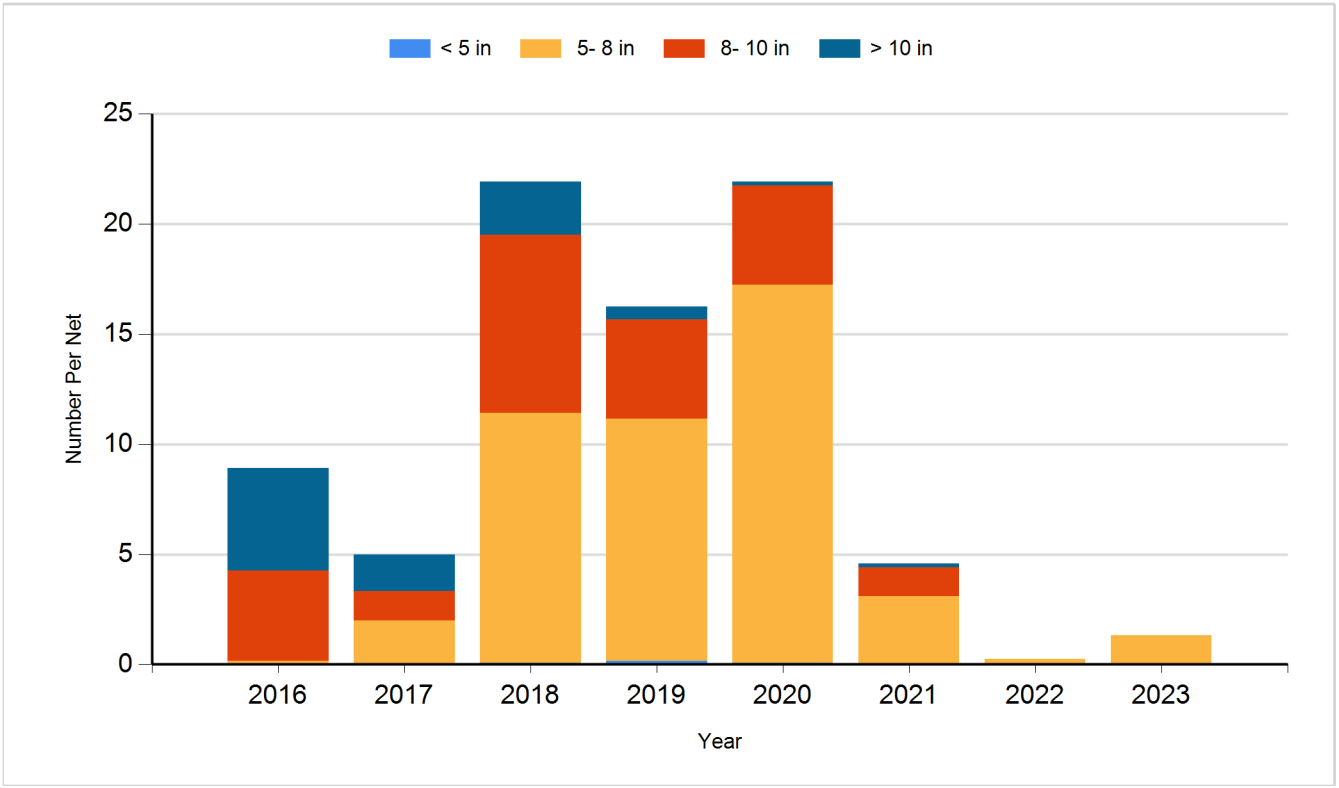
Species: White Sucker
Gear: AFS std gill net



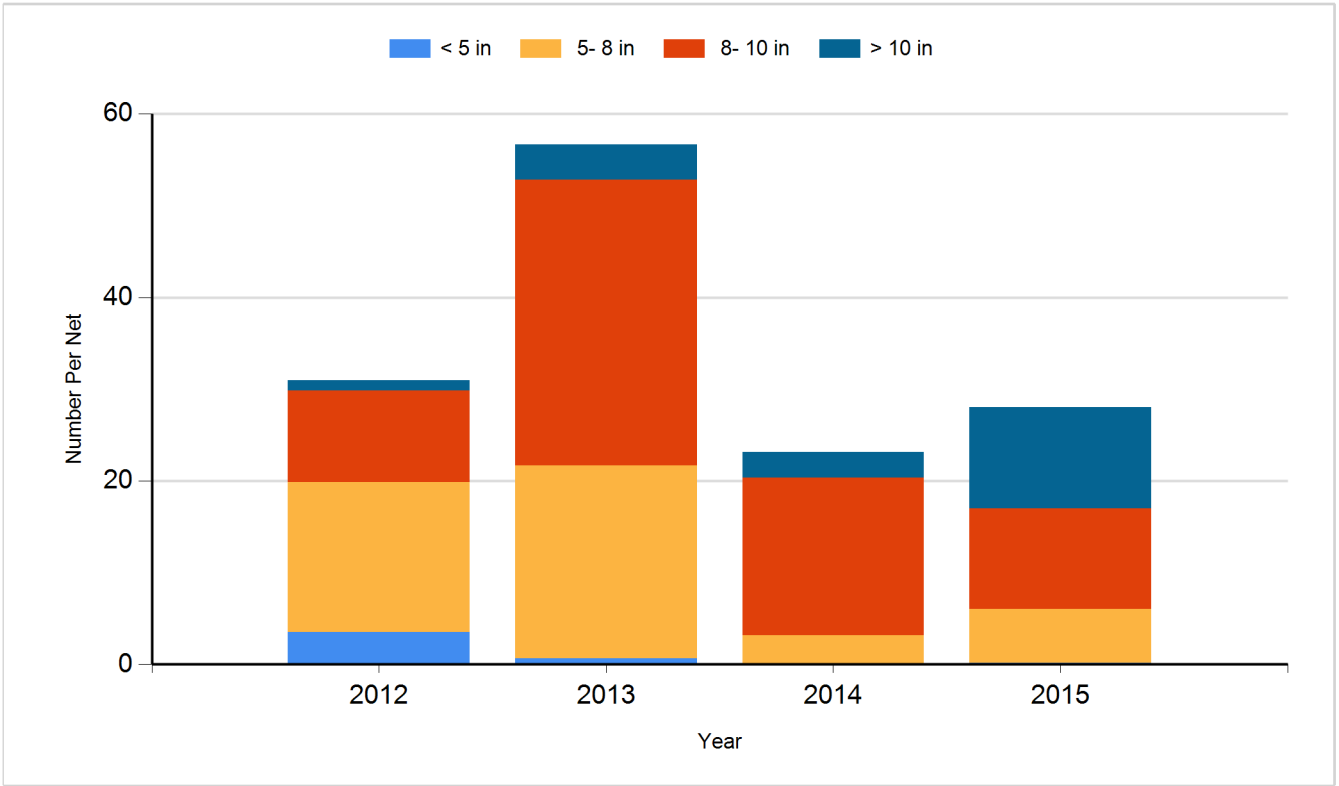

Species: White Sucker
Gear: std exp gill net



Species: Yellow Perch
Gear: AFS std gill net




Species: Yellow Perch
Gear: std exp gill net



## Fish Stocking

Number of fish stocked by year, species, and size.

| Year | Species | Size | Number |
|---|---|---|---|
| 2013 | Walleye | Small Fingerling | 93,410 |
| 2015 | Walleye | Small Fingerling | 91,850 |
| 2017 | Walleye | Small Fingerling | 71,130 |
| 2018 | Walleye | Fry | 470,000 |
| 2021 | Walleye | Fry | 500,000 |
| 2022 | Walleye | Juvenile | 91,000 |
| 2023 | Walleye | Fry | 500,000 |